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Environmental Law and Policy Annual Review

2009-2010

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The Environmental Law and Policy Annual Review

The Environmental Law and Policy Annual Review (ELPAR) is published by the Environmental Law Institute's (ELI's) *Environmental Law Reporter* (*ELR*) in partnership with Vanderbilt University Law School. ELPAR provides a forum for the presentation and discussion of the best law and policy-relevant ideas on the environment from the legal academic literature each year. The publication is designed to fill the same important niche as *ELR* by helping to bridge the gap between academic scholarship and environmental policymaking.

ELI and Vanderbilt formed ELPAR to accomplish three principal goals. The first is to provide a vehicle for the movement of ideas from the academy to the policymaking realm. Academicians in the environmental law and policy arena generate hundreds of articles each year, many of which are written in a dense, footnote-heavy style that is inaccessible to policymakers with strong time constraints. ELPAR selects the leading ideas from this large pool of articles and makes them digestible by reprinting them in a short, readable fashion accompanied by expert, balanced commentary. The second goal is to improve the quality of legal scholarship. Academicians have strong incentives to write theoretical work that ignores policy implications. ELPAR seeks to shift these incentives by recognizing scholars who write articles that not only advance legal theory but also reach policy-relevant conclusions. By doing so, ELPAR seeks to induce academicians to generate new policy-relevant ideas and to improve theoretical scholarship by inducing them to account for the hard choices and constraints faced by policymakers. To draw on an old joke in the academy, policymakers cannot simply assume a trap door when they need one, and theoretical scholarship will be far better if scholars cannot either. The third and most important goal is to provide a first-rate educational experience to law students interested in environmental law and policy.

To nominate articles to be included in ELPAR, the ELPAR Editorial Board and Staff conducted a key word search for "environment!" in an electronic database. The search was limited to articles published from August 1, 2008, until July 31, 2009, in the law reviews from the top 100 *U.S. News and World Report*-ranked law schools and the top 50 Washington & Lee-ranked environmental law journals. Student comments were excluded. The students then screened articles for consistency with the five ELPAR selection criteria, with the first two criteria receiving greatest weight: issue of environmental quality importance; policy-relevant solution; creative/novel approach; feasible/implementable; and readability/persuasiveness.

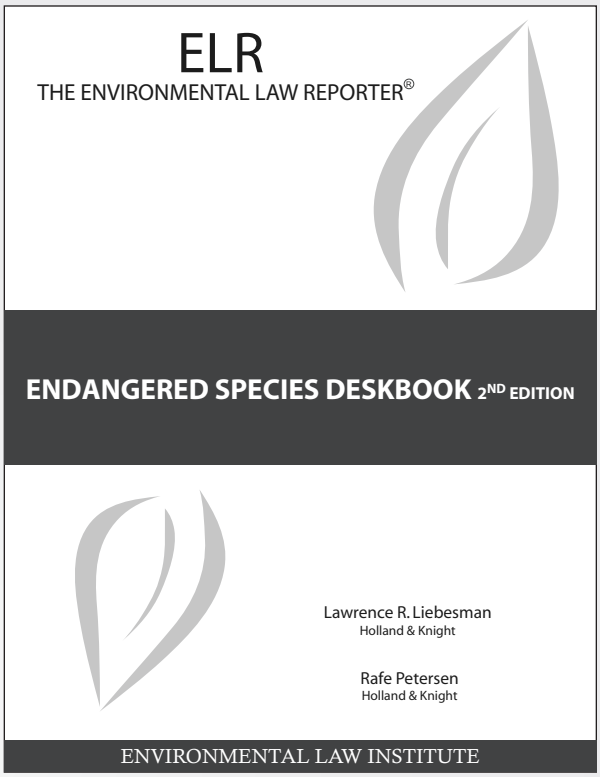
Through discussion and consultation, the students ultimately chose 20 articles for review by the ELPAR Advisory Board. The Advisory Board provided invaluable insights to the students on article selection. Vanderbilt University Law School Prof. Michael Vandenbergh, ELI Senior Attorney Linda Breggin, and *ELR* Editor-in-Chief Scott Schang also assisted the students in the final selection process. Responses or comments on the selected papers then were solicited from practicing experts in both the private and public sectors.

On April 1, 2010, at Vanderbilt University Law School and on April 16, 2010, on Capitol Hill, ELI and Vanderbilt co-sponsored conferences at which some of the authors of the articles and responses presented their ideas to an audience of business, government (federal, state, and local), think tank, media, and non-profit representatives. The conferences were structured in a manner that encouraged dialogue among presenters and attendees.

The students worked with the authors to shorten the original articles and to highlight the policy issues presented, as well as to edit the responses. Those articles and responses are presented as ELPAR, which is also the August issue of *ELR*.

Endangered Species Deskbook
Second Edition

By Lawrence R. Liebesman and Rafe Petersen



The *Endangered Species Deskbook* is a comprehensive reference to one of the most complex and heavily litigated environmental statutes ever enacted by the U.S. Congress. The Endangered Species Act, passed in 1973, requires all federal departments and agencies to conserve endangered and threatened species by utilizing their authorities in furtherance of the act's purposes. Because the ESA takes a broad approach to species protection, it has had major impacts, especially on private property rights and economic development. It has also been a lightning rod for debate over human impacts on the biodiversity of the U.S. ecosystem. More recently, the effects of climate change on imperiled species have become hotly contested as Congress considers legislation intended to combat global warming.

This new edition of the Deskbook updates the previous edition's comprehensive discussion of the law by adding a new chapter on climate change and addressing the latest ESA-related developments, such as the listing of the polar bear under the ESA. This second edition also includes appendixes that detail key laws, policies, regulations, and contact information for easy reference.

By explaining the ESA's complicated history and implementation—along with ensuing agency regulations and court decisions—the Deskbook provides a practical guide for interpreting the Act. It is particularly valuable in outlining the steps that are needed for compliance with ESA and agency regulations. Like its predecessor, this new edition offers a wealth of information for practitioners, policy makers, and all citizens interested in the issues surrounding species conservation.

Biographies

Lawrence R. Liebesman, partner with the law firm of Holland & Knight, has more than thirty years experience as an environmental attorney and litigator. He is a frequent author and lecturer on environmental topics and has participated in landmark Supreme Court cases under the Clean Water and Endangered Species Acts. **Rafe Petersen**, also a partner with Holland & Knight, primarily practices in the area of environmental compliance and litigation, with an emphasis on the Clean Water Act, the Endangered Species Act, the National Environmental Policy Act and resource issues.

ARTICLE

The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States

by Sara C. Bronin

Sara C. Bronin is an associate professor at the University of Connecticut School of Law. Trained as an architect, she has researched and published in the areas of property, land use, historic preservation, green building, and renewable energy law. Her scholarship focuses on creating economically and environmentally sustainable American cities.

In 1971, *The Quiet Revolution in Land Use Control* inspired numerous scholarly debates about the states' role in land use regulation.[1] In that book, Fred Bosselman and David Callies recognized that localities have long borrowed states' police power to regulate land use.[2] They nonetheless argued that certain land use issues, such as those involving the environment, transcended local government boundaries and competencies.[3] A quiet revolution, the authors claimed, should occur to shift governmental authority from local governments to entities that could more adequately address "extralocal" issues.[4] They turned not to regional authorities or the federal government, but to the states, arguing that states should take back their police power to regulate extralocal issues in a manner that maintained two core values of the quiet revolution: the preservation of the existing land use system and the respect for local autonomy.

Thirty-seven years later, their anticipated transformation has not yet occurred. Carol Rose has noted that since the quiet revolution was first heralded, state and regional governments have not limited—and in fact, may have expanded—local discretion with respect to land use decisionmaking.[5] In 2002, David Callies himself acknowledged that localities play an increasingly important role in, among other areas, environmental protection.[6]

It is time, however, to revive the call of the quiet revolution for states to become more involved in regulating land use, particularly in light of growing evidence of the negative externalities of conventional construction. As written and enforced, "traditional" local land use laws such as zoning ordinances and design controls hinder efforts to build green. This Article examines this conflict and suggests reforms to our land use regulatory system that would facilitate sustainable design.

Part I defines green building by referencing widely accepted industry standards. It then examines the significant negative externalities of conventional construction. It argues that, as evidence of these negative externalities mounts, landowners, including the government, will gravitate toward green building.[7]

Part II explains how the shift toward green building has already created tension with respect to the administration and enforcement of traditional land use regulation. Those that allow green building often allow it piecemeal, but fail to develop comprehensive rules. And although a handful of communities have attempted to address green building through comprehensive legal regimes, localities are so autonomous, and local laws so varied, that it is difficult to transport best practices across jurisdictional lines. Evidence reveals that the dominant mode of land use regulation nationwide bars the reforms that environmentalists and the building industry have worked together to develop.

Part III asserts that states must take back at least some of their powers to regulate land use and facilitate green building

This Article is excerpted from the Minnesota Law Review, 93 Minn. L. Rev. 231 (2008), *and is reprinted with permission.*

1. Fred P. Bosselman & David L. Callies, The Quiet Revolution in Land Use Control (1971).
2. *See id.* at 1 ("The *ancien regime* being overthrown is the feudal system under which the entire pattern of land development has been controlled by thousands of individual local governments.").
3. *See id.* ("The tools of the revolution are new laws . . . sharing a common theme—the need to provide some degree of state or regional participation in the major decisions that affect the use of our increasingly limited supply of land.").
4. *Id.* at 3 (arguing that states "are the only existing political entities capable of devising innovative techniques and governmental structures to solve problems . . . beyond the capacity of local governments acting alone").
5. *See* Carol M. Rose, *Planning and Dealing: Piecemeal Land Controls as a Problem of Local Legitimacy*, 71 Cal L. Rev. 837, 842-43 (1983).
6. Carol M. Rose, *New Models for Local Land Use Decisions*, 79 Nw. U. L. Rev. 1155, 1156 (1985) (focusing entirely on local modes of land use decisionmaking).
7. This view is supported by the finding that governmental actors—which are immune from the land use rules they impose on private actors—have integrated green building into public projects.

as a solution to the significant extralocal negative externalities of conventional construction.

I. The Extralocal Impact of Conventional Construction

The rapidly growing green building movement challenges the notion that traditional land use regulation should be an exclusively local function. The movement has brought the environmental consequences of conventional construction to the forefront and exposed the inadequacy of local legal regimes to respond to private land use decisions with significant extralocal externalities. This part sets the stage for Part II's analysis of the tensions between green building and existing law by defining green building on the one hand, and conventional construction on the other. Studies underscore the stark differences between these two modes of construction and enumerate the benefits of sustainable design. As these benefits become more widely known, landowners will increasingly seek to build green.

A. A Green-Building Definition

While there are innumerable innovative ways one can build green, the best and most common definition of green building can be found in the Leadership in Energy and Environmental Design (LEED) program developed by the nonprofit, nongovernmental U.S. Green Building Council.[8] The LEED program evaluates the sustainable features of new construction by giving points in six areas: (1) location and siting; (2) water efficiency; (3) energy and atmosphere; (4) materials and resources; (5) indoor environmental quality; and (6) innovation and design.[9] Property owners can petition the U.S. Green Building Council for certification indicating that their buildings have achieved a certain number of points within each of these six areas.[10]

B. The Negative Externalities of Conventional Construction

With this definition of green building, it is possible to contrast green building with conventional construction, and consider the ways in which the impact of the construction and operation of conventionally designed buildings extends far beyond local boundaries.

Construction is the nation's largest manufacturing activity, using sixty percent of the nonfood, nonfuel raw materials consumed each year.[11] Worldwide, buildings and the construction of buildings account for one-sixth of the world's freshwater withdrawals, forty percent of the world's material and energy flows, and twenty-five percent of wood cut for nonfuel uses.[12] In conventional buildings, materials are often brought in from long distances, with project managers giving little or no consideration to the availability of local alternatives or to the amount of energy used to transport materials. Sustainable design principles, by contrast, recognize that the use of local materials helps the environment by reducing the number of vehicle miles attributed to a project, and LEED awards points for the use of materials extracted and manufactured within a five hundred mile radius of the registered project.[13] Similarly, few conventional projects incorporate recycled materials to a significant degree—unlike LEED-certified projects, nearly all of which incorporate recycled materials during construction, and all of which must provide recycling facilities to occupants once construction is completed.[14]

Post-construction, conventionally designed buildings consume massive amounts of natural resources. Large buildings require millions of gallons of water to operate basic systems and to meet inhabitants' needs; commercial buildings alone use nearly twenty percent of our nation's drinking water supply annually.[15] Keeping buildings lit, cool, warm, or otherwise habitable takes up thirty-six percent of primary energy use, and two thirds of all electricity use.[16] LEED-certified projects consume substantially less water and energy, which translates into operating savings for the owner: studies have shown that such projects generate utility bills (a reasonable proxy for consumption) thirty to fifty percent less than utility bills for conventional buildings.[17]

In light of such statistics, the value of sustainable design is clear. Green building reduces both the amount of waste that demolition and new construction produce, and the amount of resources consumed over the life of the building.

II. Local Barriers to Green Building

Despite the need for green building described in Part I, traditional land use laws tend to thwart green building. The vast majority of localities have responded to the nascent sustain-

8. *See, e.g.*, Brian D. Anderson, *Legal and Business Issues of Green Building*, 79 Wis. Law. 10, 10, 12 (2006) ("[T]he U.S. Green Building Council has taken the lead in establishing a formalized green building rating system.").
9. U.S. Green Bldg. Council, Green Building Rating System for New Construction & Major Renovations v-vi (Version 2.1, 2002, rev. 2003), *available at* https://www.usgbc.org/Docs/LEEDdocs/LEED_ RS_v2-1.pdf.
10. LEED levels include the basic certification level, then silver, gold, and platinum. *Id.* at vi.
11. John L. Sznopek & William M. Brown, Materials Flow and Sustainability, USGS Fact Sheet FS-068 98 (1998), *available at* http://pubs.usgs.gov/fs/fs-0068-98/fs-0068-98.pdf.
12. *See* David Malin Roodman & Nicholas Lenssen, Worldwatch Paper #124: A Building Revolution: How Ecology and Health Concerns Are Transforming Construction, Worldwatch Institute (1995).
13. U.S. Green Bldg. Council, *supra* note 9, at 43-44 (awarding one point if such materials account for twenty percent of the materials used and an additional point if such materials account for fifty percent of the materials used).
14. *Id.* at 37-42 (requiring that builders utilize recycling areas and allowing builders to receive more credits for reusing materials and incorporating recycled material).
15. Energy Star, The First Step to Improving Water Efficiency, http://www.energystar.gov/index.cfm?c=business.bus_water (last visited Oct. 16, 2008).
16. Stephanie J. Battles & Eugene M. Burns, Trends in Building-Related Energy and Carbon Emissions: Actual and Alternate Scenarios (Aug. 21, 2000), *available at* http://www.eia.doe.gov/emeu/efficiency/aceee2000.html (discussing primary energy use). "Primary energy is the amount of site or delivered energy plus losses that occur in the generation, transmission, and distribution of the energy." *Id.* at n.2; *see also* Smart Communities Network, Green Buildings Introduction, http://www.smartcommunities.ncat.org/buildings/gbintro.shtml (last visited Oct. 16, 2008) (discussing electricity use).
17. *See* Bureau of Nat'l Affairs, *Green Buildings Helping the Environment, the Bottom Line*, Envtl. Compliance Bull., June 18, 2007, at 208.

able design revolution by either explicitly prohibiting certain green technologies, typically on aesthetic grounds, or by ignoring the green building movement in the text of ordinances and making piecemeal decisions on land use applications, creating ambiguity and inconsistency. Only a few municipalities have begun to address climate change and the conservation of natural resources:[18] about seventy-five general purpose local governments (out of 38,967 nationwide) incorporate sustainable design principles into their ordinances.[19]

A. *Barring Green*

Communities typically impose zoning and design controls for the purpose of protecting and enhancing property values. Such laws depend, of course, on challenging judgments about what the market will value.[20] Presumably operating on the assumption that modern technologies are unattractive while adding no nonaesthetic value to the property, some communities explicitly use design controls to prevent their installation.

Perhaps the most common sustainable technology barred by design control laws is the photovoltaic panel, which can be placed on or around structures to capture and convert solar energy.[21] Indeed, aesthetic review boards and historic preservation boards, which typically govern structures visible from a public way, regularly reject their installation.[22] Unfortunately, to maximize sun exposure, panels must often be sited in locations at least partially visible from a public way. The solar panel example highlights the tension between the aesthetic concerns of design control boards and the energy-efficiency concerns of environmental advocates. Rather than celebrating and fully utilizing their energy-efficient technologies, homeowners are forced to hide or dismantle them.[23]

Many green technologies are not nearly as unattractive as design control boards assume, and the manufacturers who produce such technologies are working on ways to better integrate them into conventional building design.[24] Moreover, as green building becomes more popular and as its long-term benefits become clear, it may enhance property values as much as design controls do. It is critical, therefore, that communities maintain sufficient flexibility in their design controls so that they may adjust both to the rapidly evolving range of green technologies and the potentially growing market value of such features.

B. *Ignoring Green*

While some localities explicitly ban the installation or use of green technologies perceived to be inconsistent with the community's aesthetic standards, many more localities fail to include any explicit reference to green technologies in their land use regulations. Although undoubtedly less problematic than an outright ban, failure to contemplate green technologies can itself hinder their utilization.

Zoning ordinances often fail to address freestanding, bulky, or noisy green-building technologies. Technologies such as windmills, solar panels, fuel cells, water collectors, and turbines are mentioned in only a handful of the thousands of zoning ordinances in force across the country.[25] Where relevant language does not appear in the ordinance, applicants cannot know in advance whether the installation or modification of green technologies is subject to zoning board review. Applicants may review the ordinance, and, seeing no relevant language, proceed with construction, only to be told later that they must dismantle the structure or pay a fine.[26]

A related problem that occurs in the absence of relevant language is that zoning boards have no standards by which to judge applicants for zoning relief. Instead, the boards engage in ad hoc inquiries leading to uncertainty among applicants seeking to employ innovative techniques and technologies. As Carol Rose has argued, this type of piecemeal decision-

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18. *See* Randall S. Abate, *Kyoto or Not, Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 Cornell J. L. & Pub. Pol'y 369, 384-85 (2006) (describing how 155 mayors signed a statement calling on the federal government to address climate change and 132 mayors representing 29 million citizens have embraced the Kyoto Protocol mandates for their cities); Cinnamon Carlarne, *Climate Change Policies an Ocean Apart: EU and US Climate Change Policies Compared*, 14 Penn St. Envtl. L. Rev. 436, 445-46 (2006) ("Faced with weak federal efforts to address climate change, states such as California and New York and cities such as Portland and Philadelphia are choosing to follow in the footsteps of the European Union."); John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law, in* New Ground: The Advent of Local Environmental Law 3, 3 (John R. Nolon ed., 2003) ("[Municipalities enact] local comprehensive plans expressing environmental values, zoning districts created to protect watershed areas, environmental standards contained in subdivision and site plan regulations, and stand-alone environmental laws adopted to protect particular natural resources such as ridgelines, wetlands, floodplains, stream banks, existing vegetative cover, and forests.").

19. *See* U.S. Census Bureau, U.S. Dep't of Commerce, Government Organization: 2002 Census of Governments 5 (2002), *available at* http://www.census.gov/prod/2003pubs/gc021x1.pdf (providing the 38,967 figure); Bureau of Nat'l Affairs, *supra* note 17, at 208 (noting that seventy-five local governments have committed to following LEED guidelines). These cities include Chicago, Dallas, Denver, Eugene, Portland, San Jose, Santa Monica, Scottsdale, and Seattle. *See* Christopher D. Montez & Darren Olsen, *The LEED Green Building Rating System and Related Legislation and Governmental Standards Concerning Sustainable Construction*, Construction Law., Summer 2005, at 38, 41-42.

20. *See* Beverly A. Rowlett, *Aesthetic Regulation Under the Police Power: The New General Welfare and the Presumption of Constitutionality*, 34 Vand. L. Rev. 603, 622-23 (1981).

21. *See generally* Peter Gevorkian, Solar Power in Building Design (2007) (describing the history, technology, and design of photovoltaic panels).

22. *See, e.g.,* David Collins, *Not So Hot*, Santa Fe New Mexican, Jan. 8, 2006, at I1 (describing the reluctance of the Santa Fe Historic Design Review Board to allow solar panels); Tom Sharpe, *Solar Collectors to Be Removed From House in Historic District,* Santa Fe New Mexican, July 23, 2005 (chronicling the experience of one Santa Fe couple forced to remove solar panels worth $40,000 from their home in a historic district).

23. *See, e.g.*, Lorraine Mirabella, *Marylanders Are Finding Energy Else-where*, Chi. Trib., Jan. 18, 2004, §16, at 5P (describing how a Takoma Park, Maryland homeowner hid thirty-six solar panels on the back of his roof).

24. *See, e.g.,* Sara Schaefer Muñoz, *An Inconvenient Turbine: Conservation vs. Preservation*, Wall St. J., July 12, 2007, at B6 (providing two examples of companies designing new energy-efficient products that fit in with existing surroundings).

25. *See supra* note 19 and accompanying text (explaining that relatively few localities nationwide address green-building issues).

26. *See* Sanya Carleyolsen, *Tangled in the Wires: An Assessment of the Existing U.S. Renewable Energy Legal Framework*, 46 Nat. Resources J. 759, 787 (2006) (suggesting that a builder often cannot find information about green technologies, such as solar panels, and consequently "will not know whether . . . he or she can simply confirm that the panels conform to height and setback regulations").

making tends to ignore extralocal effects, exclude low-income outsiders, shift environmental problems to neighbors, and thwart orderly and predictable development.[27]

C. Isolated Experiments in Local Reform

Only a handful of localities currently promote green building through their land use laws. They do so by issuing mandates, writing optional codes, comprehensively reevaluating certain existing laws, and granting green-building projects certain procedural benefits. While localities are currently testing each of these strategies, and might find some to be successful, adoption in most—or even a substantial minority of—localities across the country seems practically infeasible.

The most aggressive tool for promoting green building is to actually mandate standards in land use laws. The handful of passed mandates set the LEED point system as their goal.[28] The largest city to embrace green-building mandates is Boston: in the summer of 2007, the city amended its zoning ordinance to require that all private construction over fifty thousand square feet meet minimum LEED criteria.[29] Through its Green Points Program, Boulder, Colorado, requires some combination of recycled materials (such as fiber concrete, reclaimed lumber, or recycled roofing materials), green insulation products, energy-efficient windows, radiant floor heating, or other sustainable products in private residential addition and remodeling projects larger than five hundred square feet.[30] Small towns have also experimented with mandates. For example, Babylon, New York, requires new construction of multiple residences, and commercial, office, and residential buildings greater than four thousand square feet, to meet LEED criteria; Babylon officials estimate that this change will reduce greenhouse gas emissions by 1.37 million tons.[31] Meanwhile, Greenburgh, New York, amended its building code to require greater energy efficiency, mandating that homes meet state ratings goals.[32]

Despite the few examples listed above, and despite the undoubted effectiveness of mandates as a tool for minimizing the negative externalities of conventional construction, mandates have never been popular. Developers in particular—whether or not they support green building in principle—are likely to be the strongest opponents of mandates, because they have the most to lose. Of course, developers might worry about the cost of green building, despite recent studies showing that the cost is lower than commonly perceived.[33]

Optional codes are an alternative to mandates and encounter less constituent opposition because individual landowners might choose to use either the traditional or the optional code. Instead, the major opposition to optional codes comes from overworked local land use officials who must draft, and regulate under, a new legal regime.[34]

In addition to substantive changes to land use laws, localities may consider procedural reforms that favor green building. Such reforms have the least impact of the reforms suggested, but they also meet with the least opposition. Several localities, for example, have waived building permit fees for buildings that incorporate at least one type of sustainable technology.[35] Instead of fee waivers, Scottsdale, Arizona, provides participants in its Green-building Program with public recognition, green-building inspections, and development process assistance for green projects.[36]

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27. *See* Rose, *supra* note 5, at 840-42.
28. *See* Conn. Gen. Stat. §16a-38k (2007) (requiring that new public construction projects which cost over five million dollars achieve LEED silver standard); S.B. 5509, 59th Leg., Reg. Sess. (Wash. 2005) (requiring all public buildings in Washington receiving state funding to achieve LEED silver standard); Cal. Exec. Order No. S-20-04 (Dec. 14, 2004), *available at* http://www.dot.ca.gov/hq/energy/ExecOrderS-20-04.htm (requiring that grid-based energy usage of public buildings in California decrease twenty percent by 2015 and that all public building construction achieve LEED silver standard).
29. Boston, Mass., Zoning Code arts. 37-3, 37-4, 80B-6(2)(vii) (2007) (stating that any proposed project that is subject to the city's "Large Project Review" must demonstrate that it would meet the appropriate level of LEED certification). In calculating LEED compliance, the city may award a bonus point if the project involves certain historic structures. *Id.* art. 37 app. A.
30. *See* City of Boulder, City of Boulder Residential Bldg. Guide, Green Building & Green Points Application, at 4-9 (2008), *available at* http://www.bouldercolorado.gov/files/PDS/codes/1001_web.pdf.
31. Anthony S. Guardino, *Green Revolution: New Local Regulations Address Global Warming*, N.Y. L.J., July 25, 2007, at 8.
32. *See id.*
33. *See, e.g.*, Jennifer R. DuBose et al., *Analysis of State-Wide Green Building Policies*, 2 J. Green Building 2, 161, 173-74 (Spring 2007) ("[D]ocumentation required for LEED certification is sometimes perceived as cumbersome and costly. . . . Cost is one of the biggest inhibitors to green building (with or without LEED certification)."); Rosemary Winters, "*Green" Building Products Can Prove Profitable in Salt Lake City*, Salt Lake Trib., Feb. 24, 2004, at E1 ("One of the largest barriers to popularizing green-building techniques is the perception that such techniques cost more."); Nat'l Ass'n of Home Builders, Codes and Standards, *available at* http://www.nahb.org/generic.aspx?genericContentID=3093&print=true (describing the need for cost-effective green-building guidelines as one of the National Association of Home Builders' policy concerns); Greg Kats et al., Report to California's Sustainable Building Task Force, the Costs and Financial Benefits of Green Buildings, at 15 (2003), *available at* http://www.usgbc.org/Docs/News/News477.pdf (studying thirty-three office and school projects to come up with an average cost premium of 1.84 percent on green buildings); Lisa Fay Matthieson & Peter Morris, Davis Langdon, Costing Green: A Comprehensive Cost Database and Budgeting Methodology 3 (2004), *available at* http://www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf (analyzing six hundred projects located in nineteen states and concluding that "many projects achieve sustainable design within their initial budget, or with very small supplemental funding").
34. *Cf.* Sara C. Galvan, *Rehabilitating Rehab Through State Building Codes*, 115 Yale L.J. 1744, 1771-72 (2006) (describing how building code officials, whose departments are understaffed and underfunded, are among those most resistant to reform in building code texts). The understaffing of city planning departments has been documented only on a city-by-city basis. *See, e.g.*, City of L.A., Office of the Controller, Performance Audit of the Department of City Planning's Case Processing Function 24 (2005), *available at* http://www.lacity.org/ctr/audits/ctraudits1803321010312005.pdf (identifying an eighteen percent vacancy rate in staff positions); S.F. Chapter of the Am. Inst. of Architects & S.F. Planning & Urban Research Ass'n, Planning the City's Future 8 (2004), *available at* http://www.spur.org/documents/pdf/ 040301_report_01.pdf (calling the planning department "severely understaffed").
35. *See, e.g.*, Chelsea Phua, *Solar Fee Waiver Mulled, SMUD Proposes Program for Efficient Energy Use and Green Technology*, Sacramento Bee, Feb. 5, 2007, at B1 (describing how the Sacramento Municipal Utility District proposed to waive building permit fees for projects with solar panels, foregoing only five to ten thousand dollars in revenue, and how Elk Grove, California, adopted a similar ordinance); Stephen Wall, *Green Campaign Wins Green Light*, San Bernardino County Sun, Aug. 29, 2007 (describing how the San Bernardino County Board of Supervisors waived building permit fees for owners of existing buildings who "install solar panels, wind turbines, tankless water heaters, and energy-efficient air conditioning systems").
36. *See* City of Scottsdale, Ariz., Green Building Program, (2004) *available at* http://www.scottsdaleaz.gov/Assets/Public+Website/greenbuilding/ProgramOverview.pdf.

Despite examples of successful local reform, very few localities have taken steps to amend existing laws or to create new laws that address green building.[37] Institutional inertia serves as a key obstacle: simply put, local government officials resist change.[38]

III. The Quiet Revolution Revived Through State Control

In light of the impracticability of national or regional land use schemes, and in light of the failures of localities to enact reforms to address green building, states should reclaim their abilities to regulate land use under the police power to move reforms forward. This Part challenges the long-accepted view that states have no role to play in traditional land use regulation and explains why sustainable design might inspire a renewal of the long-dormant quiet revolution. The major barrier to the revival of the quiet revolution is the potential conflict with local autonomy. Yet as this Part demonstrates, the current land use regime allows the states to make changes without compromising local autonomy.

A. Why States

The argument that states should become more involved in land use is controversial but not new: *The Quiet Revolution* sets forth an argument for state involvement that consists of five major components. First, it recognizes that localities have long been the primary level of government involved in land use regulation.[39] Second, it identifies problems of statewide significance, including "social problems as well as problems involving environmental pollution and destruction of vital ecological systems, which threaten our very existence."[40] Third, it recognizes the ways in which localities cannot (or do not) address the identified problems.[41] Fourth, it analyzes the possibility of extralocal reforms which do not involve state governments.[42] Fifth, it asserts that states could do much more to tackle the problem identified.[43]

This Part finally considers the fifth component of the argument supporting the quiet revolution with respect to sustainable design: why states? In asking this question, this Article does not assert that states—or any other single level of government, for that matter—should address the sustainability dilemma alone; an integrated approach is necessary, and each level of government has something to offer. Instead, this Article aims to focus attention on the inactivity of states relative to their potential and their powers.

States have never fully exercised their land use authority.[44] States can expand or contract localities' decision-making powers by amending enabling acts or by enacting unrelated legislation. With the power to pass laws, which affect each locality, states have the power to reform the land use regulation system in a significant way to effect change on the wide scale, which the evidence suggests is necessary. Yet no state has demonstrated a willingness to change local land use laws to respond to the mounting evidence against conventional construction.

The states' unresponsiveness in the land use regulation context does not necessarily reflect an antipathy toward the green-building movement. To the contrary, state lawmakers have demonstrated a willingness to promote green building in other important areas. Approximately a dozen states have undertaken a variety of whole-building sustainable-design initiatives, including green-building tax credits and mandatory design requirements for public buildings.[45] In addition, many states provide financial incentives for the installation or utilization of specific green technologies.

State legislatures should go beyond incentives, however, and enact wide-scale land use reform that does not compromise local autonomy. As a practical matter, localities are already limited in their ability to exercise traditional land use regulatory powers.[46] This Article does not argue that states should limit localities even further by reclaiming all land use regulatory powers. In the absence of local leadership in an area as significant as green building, however, states—which enable localities to enact zoning, aesthetic review, and historic preservation ordinances in the first place—can and should work through the existing land use regime to limit localities' powers. In crafting such limitations, states must take into account—and even embrace—the structure of the existing land use regime. Indeed, one of the major tenets of the quiet revolution is that states should "relate in a logical manner to the continuing need for local participation."[47] According to Bosselman and Callies, even if localities' land use regulatory schemes produce undesirable results, their role must be respected.[48] A land use revolution may only be quiet—and successful—if it protects local autonomy.

37. *See* Nancy J. King & Brian J. King, *Creating Incentives for Sustainable Buildings: A Comparative Law Approach Featuring the United States and the European Union,* 23 Va. Envtl. L.J. 397, 415 (2005).
38. *See* Galvan, *supra* note 34, at 1772-73 (describing a similar concern with code officials' resistance to rehabilitation building codes, another innovation in coding).
39. Bosselman & Callies, *supra* note 1, at 2-3.
40. *Id.* at 3.
41. *Id.*
42. *Id.* at 4.
43. *Id.* at 327.
44. *Id.* at 2-3.
45. *See* Jennifer R. DuBose et al., *supra* note 33, at 161, (describing how green-building programs in eleven states evolved); Patricia E. Salkin, *Squaring the Circle on Sprawl: What More Can We Do? Progress Toward Sustainable Land Use in the States*, 16 Widener L.J. 787, 790-821 (2007) (describing various state programs relating to "smart growth"); Christopher D. Montez & Darren Olsen, *The LEED Green Building Rating System and Related Legislation and Governmental Standards Concerning Sustainable Construction*, Construction Law., Summer 2005, at 38, 39-41.
46. David J. Barron & Gerald E. Frug, *Defensive Localism: A View of the Field From the Field*, 21 J.L. & Pol. 261, 265-66 (2005) (explaining that localities sometimes feel constrained by "large structural forces over which they have little effective power given the limited reach of their jurisdiction").
47. Bosselman & Callies, *supra* note 1, at 320.
48. *Id.* at 3 ("A recognition of the inadequacies of local [control] must not, however, cause the values of citizen participation and local control . . . to be submerged completely in some anonymous state bureaucracy.").

B. Experiments in State Reform

A final question remains: how can states push localities to counteract the wide-scale problems created by conventional construction without infringing on local autonomy? In the broader context of land use regulation, several states have enacted legislation that directs localities to prioritize certain factors in decisionmaking, to undertake studies, to designate financial resources, or to manage growth in ways the state approves.[49] In the green-building context, some states, such as California, Connecticut, and Arizona, have already begun experimenting with state-level reforms which preserve the two core values of the quiet revolution: the preservation of the existing land use system and the protection of local autonomy.[50] They do not aim to rewrite existing land use regulations on a locality-by-locality basis, but instead aim to create statewide rules that either influence land use decisionmaking or address sustainable design techniques that have not been addressed by localities.

The California legislature, for example, prevents local governments from denying solar energy permits on the basis of aesthetics alone.[51] In reviewing a building permit for a solar energy system, a locality may only consider health and safety issues, and if the system "could have a specific, adverse impact upon the public health and safety," the locality may require the applicant to apply for a use permit in addition to the building permit.[52] This use permit cannot be withheld unless the locality "makes written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact."[53] This language makes localities' denial of solar energy systems extremely difficult. As a result of this legislation, most California cities exempt solar panels from the aesthetic review process altogether.[54]

Connecticut, similarly, limits how far historic district commissions can go to regulate solar panels. Its historic district enabling statute, which allows localities to create historic districts, states that a local historic commission cannot block the construction of a solar energy system (or other systems which use renewable resources) unless such a system "cannot be installed without substantially impairing the historic character and appearance of the district."[55] Connecticut's protection of solar panels clearly leaves more to the historic commission's discretion than does California's: local commissioners may easily find that a solar panel "substantially impairs" the aesthetics of a historic building. Yet by including this language in its historic district enabling statute, the state has made a significant attempt to address the evolving interplay between green building and design controls.

Finally, Arizona is a leader among the states in accommodating gray water.[56] Most localities fail to address gray water—defined as any untreated household wastewater excluding toilet water—which can be used to water lawns, irrigate crops, or flush toilets. Three or four LEED water efficiency points can be earned by recycling gray water.[57] Despite gray water comprising fifty to eighty percent of domestic wastewater, and despite its reusability after relatively inexpensive treatment, localities often make the recycling of gray water very difficult.[58] Local laws do not always differentiate between gray water and black water (toilet water), which is considered to be sewage and which cannot be used for any reason unless it is thoroughly treated.[59] Arizona provides for three different tiers of gray water users; it does not require permits for household gray water recycling of less than four hundred gallons per day and it specifies performance standards instead of prescriptive rules for the remainder of the users.[60] Through this statute, the state provides guidance on an issue with which localities have not traditionally been involved, presenting an environmentally responsible approach to state regulation that should be replicated elsewhere.

The three preceding examples demonstrate the benefits of state-by-state experimentation—experimentation which could not occur at a federal level, where decisionmaking is both too centralized and too distant from the level at which land use decisions typically occur, or at the regional level, which despite scholars' support does not really even exist. Many more states should weigh this balance to find innovative ways to preserve both the environment and local autonomy.

IV. Conclusion

If policymakers find ways to reduce emissions from these future buildings, as well as from the buildings that already

49. John R. Nolon, *Champions of Change: Reinventing Democracy Through Land Law Reform*, 30 Harv. Envtl. L. Rev. 1, 26-29 (2006) (describing, for example, the state of Wisconsin mandate that each city develop a plan which incorporates specific smart growth elements, and the state of Iowa law that conservation districts design and enforce erosion-control measures).
50. *See id.*
51. Cal. Gov't Code §65850.5 (West 2007).
52. *Id.* §65850.5(b).
53. *Id.* §65850.5(c).
54. Isabelle Groc, *When the Joneses Go Solar*, High Country News, July 23, 2007, at 6 (noting that solar panels installed in the 1970s often are not maintained and become dilapidated and unattractive); Todd J. Wenzel, *State LEEDs Way in Green Building Movement*, Recorder, Mar. 26, 2007, at 16 (describing Marin County as one example which "speeds permit processing and waives some design review" for sustainable technologies).
55. Conn. Gen. Stat. §7-147f(a) (2007).
56. Larry Gallagher, *How Does Your Garden Grow?*, Onearth, Fall 2005, at 12 ("At the forefront are Arizona and New Mexico, where reining in water use is an obvious priority."); Art Ludwig, Oasis Design, Greywater Policy Packet 31 (2005), *available at* http://oasisdesign.net/downloads/GWPolicyPacket.pdf.
57. U.S. Green Bldg. Council, Leed for New Construction & Major Renovations: Version 2.2, at 27, 29-32 (2005), *available at* http://www.usgbc.org/ShowFile.aspx?DocumentID=1095.
58. Ludwig, *supra* note 56, at 3 (calling Arizona's gray water statute a model for other jurisdictions). Other states have not been as successful as Arizona: although California in 1994 became the first state to incorporate gray water systems into its statewide plumbing code, the law is so restrictive that an underground movement of gray water proponents—as many as two thousand in the Bay Area alone—operate gray water systems illegally. Gregory Dicum, *The Dirty Water Underground*, N.Y. Times, May 31, 2007, at F4.
59. *See* Dean Fosdick, Recycling Water Is a Gray Area, http://www.wral.com/lifestyles/house_and_home/story/2088188/ (last visited Nov. 27, 2007) (describing the consequences of prohibiting gray water usage in the southeastern United States).
60. Ariz. Admin. Code §R18-9-711 to -720 (2007).

exist, then thirty percent of current greenhouse gas emissions might be avoided by 2030, according to the respected Intergovernmental Panel on Climate Change.[61] With the opportunity to make such dramatic progress in such a short period, making our existing eighty-one million buildings and our future building stock more green deserves to be a national priority.

61. Working Group III, Intergovernmental Panel on Climate Change, Climate Change 2007: Mitigation of Climate Change, Summary for Policy makers 13 (B. Metz et al. eds., 2007).

RESPONSE

Legislating Sustainable Design: The Challenge of Local Control and Political Will

by Lavea Brachman

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Sara C. Bronin's *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*[1] revisits the age-old, American democratic debate of finding the right balance between local control and imposition of a statutory regime for the greater public good. Fundamentally, I agree with the article's premise that state policy powers are generally underutilized in the land use reform context and could be used productively to advance implementation of local green building design and construction. However, I would argue that implementation of this concept faces steep practical and political obstacles, particularly in certain states around the country, and caution that these challenges may dictate a modification in Bronin's recommendation. It will require a different vehicle or process in order for state policy to override "traditional" local land use laws, such as zoning ordinances and design controls, to enable states to "take back their police power" [2] in these areas.

I heartily concur with the general thrust of Bronin's argument that states should play a more prominent role in advancing sustainable development and design practices. As the result of either state inaction or proactive statutory regimes, an uneven playing field has emerged that encourages unsustainable development in several ways beyond the construction and design context, including encouraging greenfields development and sprawl over adaptive reuse, urban infill or brownfield redevelopment, or incentivizing development in rural, exurban or unincorporated areas outside cities (so-called townships in some states, like Ohio, Pennsylvania, and Indiana), instead of in urbanized environments. Some of the state policies causing these perverse impacts are not even directly land use-related but arise from other areas of state power, such as taxing authority where taxes are imposed unevenly on different types of jurisdictions, thus skewing the market and private sector development decisions about where to invest and develop. Conversely, such as in the case of green building where the market may not account sufficiently for negative externalities over the longer term, state intervention is beneficial. There is no question, then, that states can and should be more proactive about reexamining land use-related policies. Where they have been silent, they should act to encourage sustainable growth; where they have acted, with perverse impacts, they should reform policies to discourage unsustainable growth practices.

In addition, the uniformity among local jurisdictions in the implementation of green building practices that would result from state standards would be advantageous, thereby possibly removing the decisionmaking about construction and development practices from the confines of local politics and reducing the favoritism that inevitably taints local development processes. This would advance the green building cause considerably, and perhaps transcend the parochialism that pervades many of our local communities when confronted with new ideas, such as green building and sustainable communities. Ultimately, state intervention would go a long way toward leveling the playing field between projects that use conventional materials that are less costly in the short-term, and projects providing long-term community benefits for which local planning commissions are unable to account. Ideally, sound government policy should promote the greater public good, reflecting the philosophical democratic underpinnings on which our country was founded.

I. Challenges and Barriers to Implementation

However, *real politik* barriers to implementing the recommendation that states should adopt land use powers to promote green building may prove too steep to overcome. First, it is a more complicated process than Bronin suggests for states to adopt statewide rules that either "influence land use

1. Sara Bronin, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10733 (Aug. 2010) (a longer version of this Article was originally published at 93 Minn. L. Rev. 231 (2008)).
2. *Id.* at 10733.

decisionmaking or address sustainable design techniques,"[3] particularly in states where there is a strong constitutionally grounded tradition of home rule and local control, as in places like Ohio, Michigan, Pennsylvania, Indiana, and other Midwestern states. The challenge of galvanizing sufficient political will to adopt such rules cannot be ignored.

A second and related point is that there tends to be an overlap between places with a long tradition of home rule and strong local control, and those with legal, economic, and cultural conditions that cause them to be less predisposed to pass sustainable building codes in the first place. Therefore, the proposed changes in state law to provide for green building are generally more applicable in places with some existing tradition of or popular support for less traditional building and development. In many states it is difficult to imagine scenarios where these changes in green building would take place in a vacuum without advancing a broader sustainability agenda and bolder reforms. Where there is opportunity, arguments for green building should be made in the context of the larger macroeconomic changes that are taking place and the reality that communities with sustainable growth patterns are more likely to compete in the new twenty-first century economy. In order to compete, workers must live closer to where they work, so denser communities will attract new workers, and transportation costs will be reduced. While this less incremental approach may seem to be bolder and less achievable and thus a "heavier lift," placing a plea for state-level green building codes in this broader context will help forge deeper and wider support for sustainability reforms in the long term.

Finally, even if green building codes are implemented, they are merely a small piece of overall sustainable development. At one point Bronin points to particular states (such as California, Connecticut, and Arizona) that have begun experimenting with state-level reforms in the green building arena.[4] However, these are not tied to other reforms that ultimately would prove to have a more widespread impact on business practices and land use activities. It is perhaps more likely that contextualizing and making the case for the merits of sustainable development more broadly will lead more naturally to green building in many places.

Therefore, the article should highlight and address the challenges in galvanizing the statewide collective political will—beyond just acknowledging the conflict between state power and local autonomy—in order to make the recommended legislative changes. Expansion of state powers in any area of the law can incite opposition, territoriality, and controversy, but particularly in the area of land use in places with a deeply embedded home rule constitutional tradition. Home rule is typically defined as the power of a local city or county to set up its own system of self-government without receiving a charter from the state; it is explicitly allowed under some state constitutions. Home rule, which is a cornerstone of local law in many Midwestern states, seems to have had its origins when these states were borne out of the Northwest Territory. It shifts much of the responsibility for local government from the state legislature to the local community. As they emerged into statehood in the early 19th century, these states adopted home rule clauses and many decided to create incorporated territory called townships wherever cities did not exist. Township leaders have historically dominated the legislatures (in places like Ohio, Pennsylvania, Michigan, Indiana, Illinois, to name a few), skewing laws toward rural interests, and steering control back to the localities. This rural-urban schism is at the heart of the political will challenges to Bronin's proposal. Of course, the extent of the schism would vary from state to state, depending upon the degree of control that localities are accustomed to having. Generally, a local jurisdiction that adopts a home rule charter has the ability to amend its governmental organization and powers to suit its needs. In many states, local leaders utilize these charters as both a sword and a shield to vigorously defend their interests and protect the powers they already have.

Based on this background, then, the understanding of and preference for sustainable building and development, and thus the proposed reforms related to such sustainability issues, are likely to vary widely from state to state. Therefore, even under the best circumstances, the advantages of sustainable development may not be widely understood or accepted. It would advance Bronin's argument to acknowledge and define the conditions under which the suggested reforms might occur. In the places that are further along in understanding and adopting sustainable practices, there will be less opposition, even in the face of a preference for local control. As a result, these places are more likely to be implementing green building codes already. Ironically, it is the places that have less green cultures that need state law to change the most—and those places tend to be the states where state law change related to the governance of localities is the hardest to come by. The primary challenge, then, is how to make the business and economic case for green building, particularly in the current economic climate. While it makes legal and rational sense to endow states with the power of requiring green building codes in communities, shoring up the political will to legislate this outcome will be very challenging. The arguments must be couched in terms that highlight the places that need to adopt green building in order to be more competitive in a global, twenty-first century economy. A related argument would be to point to the job creation that would accompany a growth in the green building industry due to the need for new skills. In the states previously dominated by the auto industry, such as Michigan, Ohio, and Indiana, worker retraining is necessary for an economy driven by low carbon and green jobs.

3. *Id.* at 10738.
4. *Id.*

In many of these places, then, change in a state green building code should be part of a larger effort to reinvest in our cities and promote local and regional planning. Part of accomplishing these goals is modernizing arcane state planning and zoning statutes, which many states have not amended since the 1940s, in order to facilitate regional planning or allow for new kinds of zoning, such as urban agriculture.

II. Alternative or Complementary Solutions

Alternative or complementary ways to Bronin's recommendations are proposed here that would help change public perception and encourage acceptance of the underlying sustainability principles, and thus help advance the cause of greater state regulation of green building. First, as suggested earlier, the proposed green building reforms could be packaged with other reforms, as part of a larger revision of state planning statutes to change the uneven playing field between sustainable and traditional development. This comment recommends advancing a "package" of land use improvements that would achieve greater sustainability rather than just green building. It might seem easier to take a "single shot" approach with green building codes, but in the current economic climate in which there is very little new construction at all, the threshold is even higher to demonstrate how a change in green building law and codes would have an economically competitive impact. Therefore, a package that incentivizes cross-jurisdictional planning might be more compelling.

Also, rather than legislate a change in practices, another option would be to change administrative policy to advance sustainability practices through executive action rather than through legislative reforms. A governor or cabinet official could utilize her discretionary authority to impose or create state incentives for green building. It might be practical to target certain locations for these changes, such as urban areas where rehabilitation projects are more likely. On a practical level, companies doing urban development and rehabilitation work may be more likely to adopt green building practices than those building in greenfields.

Finally, a hybrid approach, whereby a local buy-in process—where local authorities would retain some authority over the sustainability principles that are applied—would be utilized in combination with changes in state administrative or statutory law change, might be the best solution. A process such as that alluded to in the article would be instructive for Bronin to flesh out further. In the face of the potential practical and political will impediments to implementation, this might be an appealing compromise solution; particularly as many states transition to new economies and learn the advantages of sustainability for doing business but are unlikely to make large-scale reforms overnight.

Response to *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States* by Sara Bronin

by Felicia Marcus and Justin Horner

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The focus of much dialogue and debate in the public eye over climate change and greenhouse gas emissions (GHGs) tends to focus on industrial emissions of pollution for manufacturing or the production of electricity. Emissions from transportation sources (like trains, planes, and automobiles) and from the heating, cooling, and lighting of buildings themselves are less readily visible, yet each constitutes roughly a third of America's total greenhouse gas emissions. In The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States,[1] Sara Bronin correctly focuses on the importance of facilitating the creation of "green" buildings, and identifies what she sees as significant barriers, at the local level, to the implementation of greener buildings.

While agreeing with Bronin's objectives, we feel that The Quiet Revolution Revived could benefit from consideration or reconsideration of three particular areas: (1) the article's conflation of "green building" regulation and "land use" regulation; (2) transportation energy related to building location; and (3) recent federal, state, and local efforts that are addressing all of these issues in ways consistent with what we see as Bronin's intent. Our intent here is less to critique the article than to provide other information that interested readers should know about reducing GHG emissions related to buildings. In short, we think there are both times when localities will lead states and times when states need to step in to facilitate important policy objectives. In this case, there are other vehicles to achieve greater GHG reductions that do not require even a "quiet revolution" in order to have a tremendous impact.

I. "Green Building," "Building Codes," and "Land Use": The Importance of Terminology

From a technical perspective, The Quiet Revolution Revived conflates "green" building standards, building codes, and design standards into "land use" policies, when, in fact, the terms are considered separate in practice. "Land use" generally refers to the type, general size, and use of a structure for a given location (that is, residential vs. retail vs. industrial; offices vs. restaurants vs. drugstores), whereas the article focuses more specifically on building codes and design standards. The question the article tackles is not whether we put residential or mixed use on a particular parcel (which is a land use question), but rather, since we know we're putting, say, a house, on a particular parcel, how do we make it green? Bronin recognizes this important distinction between zoning and design standards in her Section Ia, but the paper would benefit from a more precise treatment of each of the three elements.

The distinction is important because there are a variety of measures at both the state and local levels that encourage "green" principles outside of zoning or other aesthetic requirements.[2] California's Title 24, for example, is a national leader in energy efficiency without being characterized as a "green building" regulation. Changes to existing codes, or environmental performance standards within existing codes, can do as much without the "green" trappings.

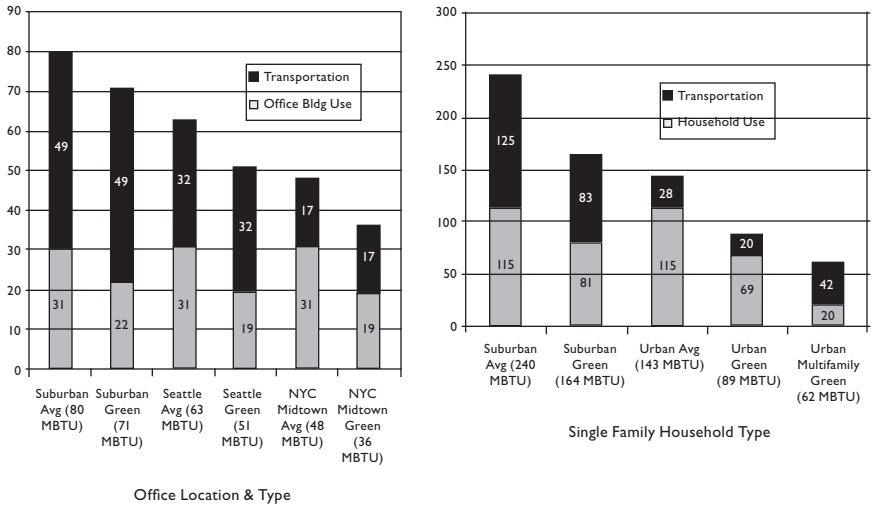
Building codes are extremely important; indeed, they are far more important from an environmental standpoint than

1. Sara Bronin, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10733 (Aug. 2010) (a longer version of this Article was originally published at 93 Minn. L. Rev. 231 (2008)).

2. We think it is also important to note that there is really no consensus definition of "green building," so even that frame can lead to misunderstanding. NRDC, for one, prefers the admittedly clunky phrase "environmentally sustainable materials, design and construction."

anything design review could regulate. Most of a building's energy use (and the strategies that are used to make buildings more efficient) is entirely invisible (location being the clearest example).[3] According to the U.S. Green Building Council, nearly 70% of all the environmental impacts of a building are the results of decisions made in the first 10% of the design phase of construction, meaning that the energy profile of the building is basically set before anyone actually knows what the building will look like.

Yes, some localities limit solar panels, but that is not necessarily synonymous with limiting or discouraging green building overall. Bronin concludes that "[t]he evidence reveals that the dominant mode of land use regulation nationwide bars the reforms that environmentalists and the building industry have worked together to develop,"[4] when no such case is made. Indeed, some local building codes that encourage green building (in San Francisco or San Mateo County, for example) are actually stronger than state building codes. We would all like the level of authority with the broadest and "greenest" reach to be the one to implement our ideal policies, but we must also leave room for local innovation.



Source: Jonathan Rose Companies, LLC

II. The Importance of Transportation Energy

In addition to design review regulations on the environmental performance of buildings, there is another area that is vastly more important and directly involves land use: transportation and location efficiency.

Green buildings are good; green buildings in the right locations are even better. What a growing evidence base[5] tells us is that where a project is sited can have more of an environmental impact than how a project is constructed or even operated.[6] Building energy use analysis should not only consider what a building is made of and how it is powered, but how much energy will be required by residents, employees, guests, and customers to get to and from the building each day. As the graphs show for residential and commercial development, transportation energy is a significant part of a project's entire energy impact.

Leading proponents of green building and development have accepted the importance of transportation energy. The U.S. Green Building Council (USGBC), the Congress for New Urbanism (CNU), and Natural Resources Defense Council (NRDC) have released LEED-Neighborhood Development (LEED-ND), the first effort to describe, catalog, and verify what constitutes green development at the project and neighborhood scale. LEED-ND endeavors to integrate planning and urban design into the evaluation of the environmental performance and energy efficiency of buildings.

Neglecting transportation energy has at least three downsides: (1) as the graphs show, ignoring transportation is simply not a fully accurate way to measure the environmental impacts of a building; (2) it avoids the fact that many traditionally built buildings are more energy efficient than so-called green buildings as a result of their location, which could significantly impact localities' policy approaches; and (3) it prevents an exploration of a real state role in transportation and land use planning (like SB 375 in California[7]), which is the cutting edge at the intersection of land use and building efficiency.

III. Examples of Innovative Federal, State, Regional, and Local Approaches to Green Building

Bronin recommends overturning the traditional locality-based approach to land use and replacing it with a stronger state role. However, we feel that while states should have strong roles in land use and building code decisions, there are more appropriate approaches short of wholesale preemption of local decisionmaking. Bronin rightly describes the significant political obstacles to a stronger state role, yet we can also say that some of the country's most innovative recent environmental policies around land use have come from within the structure of existing institutions. Importantly, one of these reforms, SB 375, relies heavily on existing regional institutions (in this case, Metropolitan Planning Organizations (MPOs)), which the article largely dismisses as potential actors.

3. For an extended discussion of energy and location efficiency and applicable policies, see David B. Goldstein, Invisible Energy (2010).
4. Bronin, *supra* note 1, at 10733.
5. *See, e.g.*, Reid Ewing et al., Growing Cooler: The Evidence on Urban Development and Climate Change, (2008).
6. We should note that the USGBC now has a system that measures and certifies building operations. LEED-Existing Buildings: Operations and Maintenance, http://www.usgbc.org/DisplayPage.aspx?CMSPageID=221 (last visited June 16, 2010).
7. *See infra* Part III A.

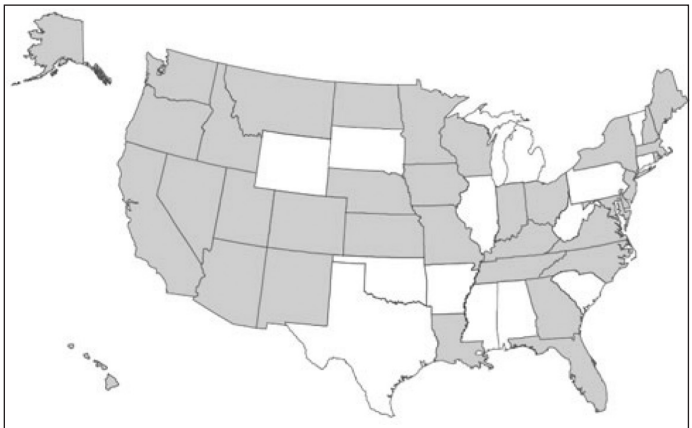
A. SB 375 and the American Power Act: The Intersection of Land Use and Transportation

In 2008, California passed SB 375, the nation's first law requiring regional land use and transportation planning to be done together, and to be tied to reducing vehicle miles travelled and GHGs from cars and light trucks. SB 375 is a great example of how different levels of government can play constructive, appropriate roles. A state-level environmental body, the California Air Resources Board, sets a GHG reduction target for each MPO region. The MPOs then create regional plans in cooperation with local governments. Regional plans that meet the GHG reduction targets benefit from prioritized transportation spending and streamlined environmental review of projects.

This common sense approach has gained significant support because it does not explicitly overturn existing structures or judge one as superior to another. In fact, the latest global warming bill recently introduced in the US Senate, the American Power Act, takes SB 375's approach to the national level. The bill would require the U.S. Department of Transportation to set a national goal for cutting global warming pollution and oil use in the transportation sector. States and large metropolitan regions would be asked to set similar targets and over time incorporate strategies to meet these goals into their transportation investment plans.

B. Solar Access Laws and PACE Programs: States Are Definitely Getting Solar

States clearly see the benefits of solar power, and are moving quickly to make it more widespread. Although some localities may limit the use of rooftop solar panels for aesthetic reasons, others promote it actively. The thirty-six states in blue already have measures in place, similar to the California law mentioned by Bronin, to limit local restrictions.[8]



Source: States Advancing Solar, 2010

In addition, the biggest barriers to the installation of solar panels are not just aesthetic. Local regulations also focus on issues of cost, convenience, and public awareness. Just this past April in California, a law was passed that will have a far greater impact on promoting solar panel installation than removal of local design standards.[9] By standardizing a statewide Property Assessed Clean Energy (PACE) financing system and having the state guarantee loans, the bill will make it easier and more affordable for Californians to undertake energy efficiency measures and small renewable energy projects on their properties. PACE lowers interest costs (because of the state guarantee) and allows property owners to amortize the cost of the project through an assessment on their property tax that runs with the property over a long period of time. The law will catalyze voluntary energy retrofits to residential and commercial property while creating a projected 10,500 direct jobs.[10]

C. U.S. Department of Housing and Urban Development (HUD): Using LEED-ND to Foster Sustainable Development

As noted above, LEED-ND is the first effort to describe, catalog, and verify what constitutes green development at the project and neighborhood scale. Just last month, HUD announced that it would use location efficiency and LEED-ND to score grant applications. HUD will invest more than $3.25 billion in local communities in the next few years, and localities will be strongly incentivized to incorporate the location, design, and green-building approaches contained within LEED-ND.

This is just the latest step in a growing federal recognition of the importance of a comprehensive view of development, one that "captures" as many externalities in good policy as possible. Earlier this year, HUD, the Department of Transportation, and the Environmental Protection Agency created an Interagency Partnership for Sustainable Communities to address the whole raft of building and development-related environmental issues.

IV. Conclusion

In sum, we appreciate Bronin's treatment of this vital area of policy. All efforts should be made to eliminate unnecessary barriers to more sustainable approaches to building. While a strong state role is often called for, we do not think that fact leads to a conclusion that dramatic preemption of local land use authority is the most important route to reducing GHG emissions from buildings. Indeed, as we hope we have demonstrated, there are ample opportunities within the existing land use regulation system (the proverbial low hanging fruit of energy efficiency being the most obvious) that can be successfully tackled without marking local land use laws as the biggest enemy.

8. *See* States Advancing Solar, http://www.statesadvancingsolar.org/policies/policy-and-regulations/solar-access-laws (last visited June 16, 2010).

9. SB77 (Pavley): California Alternative Energy and Advanced Transportation Financing Authority: Property Assessed Clean Energy (PACE). Note that implementation of PACE-like programs is currently the subject of litigation. *See* Federal Housing Financing Authority, FHFA Statement on Certain Energy Retrofit Loans (July 6, 2010), *available at* http://fhfa.gov/webfiles/15884/PACESTMT7610.pdf; Robert Selna, *State sues feds over green loans for homes,* San. Fran. Chron., July 15, 2010, *at* http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2010/07/15/MN651EEDEG.DTL.

10. SB77: Agenda 2010, *available at* http://senweb03.senate.ca.gov/focus/agenda2010/bill_pace.aspx.

Making the Land Use/Transportation Connection: Quietly Revolutionizing Land Use in the 21st Century

by Gerald P. McCarthy

Gerald P. McCarthy is Executive Director of Virginia Environmental Endowment in Richmond, Virginia, and a member of the Commonwealth Transportation Board. He acknowledges with appreciation the work of the state Secretariat of Transportation in providing information regarding the new transportation/land use connection legislation and regulations.

In her article, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, Sara Bronin argues that after almost four decades since the publication of *The Quiet Revolution in Land Use Control* by Fred Bosselman and David Callies, it is time to revive some predictions about that "quiet revolution."[1] Bronin uses the green building example as the basis for reconsidering the necessity for "extralocal" land use controls and the interplay between state and local land use functions and authority. This is an interesting lens through which to examine a very old question, having at its core the balance of power between the two levels of government as well as the balance between development and conservation. The report by Bosselman and Callies was commissioned by the new President's Council on Environmental Quality and was published in 1971. The report analyzed several innovative state land use laws to learn how some of the most complex land use issues and problems of re-allocating responsibilities between state and local governments were being addressed, especially focusing on those laws designed to deal with problems related to land use issues of regional or state concern.

A proposed federal bill was drafted, for example, that called upon states to identify and control development in areas of critical environmental concern, assure that development of regional benefit is not blocked or unduly restricted by local governments, and control large-scale development and land use in areas impacted by key facilities. Legislation and programs cited and analyzed included the (1) Hawaiian Land Use Law, (2) Vermont Environmental Control Law, (3) San Francisco Bay Conservation and Development Commission, (4) Twin Cities Metropolitan Council, (5) Massachusetts Zoning Appeals Law, (6) Maine Site Location Law, (7) Massachusetts Wetlands Protection Program, (8) Wisconsin Shoreland Protection Program, and (9) New England River Basins Commission. The conceit embedded in the report, its major policy goal, was to assert that some problems—environmental protection and conservation in particular—were too big for local governments to handle correctly and effectively, and that something between the local and state level of regulation needed to be established to do that job. Bronin states that the "quiet revolution" never occurred, and that now it might via the opportunities presented to localities and builders by "green building."[2]

In fact the "quiet revolution," a radical idea when Bosselman, Callies and the Council on Environmental Quality raised it in 1971, has proceeded, mostly under the radar, in communities across the country and in ways not even imagined in the early 1970s. Using the place I know best, the Commonwealth of Virginia, I shall try to illustrate some of the progress over the past few decades.

"The use of land is a fundamental determinant of environmental quality."[3] This was written in the very first report of the Virginia Governor's Council on the Environment. Just as the federal Council did, Virginia's environmental leadership recognized that a new approach to land use control was needed. The idea of a federal law to accomplish it, however, was politely viewed as highly unlikely to happen. Accordingly, work began on a long-term program of land use reforms that continues to this day.

In 1972, Virginia enacted its Wetlands Control law, probably the first time that the state interposed its own standards on local land use decisionmaking in order to protect a vital natural resource. The law established local wetlands boards to carry out state criteria when local permits were sought to alter or destroy wetlands in coastal localities. In 1973, Virginia enacted a Sediment and Erosion Control law that gave localities responsibility for preventing erosion and sedimentation fouling local rivers and streams. The state Division of Planning and Community Affairs attempted to pass a bill to identify and control development in areas of "critical envi-

1. Sara Bronin, *The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10733 (Aug. 2010) (a longer version of this Article was originally published at 93 Minn. L. Rev. 231 (2008)).

2. *See id.*

3. The State of Virginia's Environment, Dec. 1971.

ronmental concern," one of those catch phrases from the Bosselman book, and proposed federal legislation. Not only did the "critical environmental areas" bill meet overwhelming opposition and defeat, but the Division of State Planning and Community Affairs was abolished in the bargain. No one proposed any further legislation resembling the ill-fated federal bill again in Virginia.

By the 1980s, the Chesapeake Bay was beginning to be recognized for the national natural treasure that it is. A multi-state and federal agreement was signed in 1983 that launched what has now become an extensive and expensive program to restore the environmental health of the Bay.[4] Virginia, recognizing that it had to intensify and strengthen the legal connection between the natural connection of land and water, negotiated and passed a landmark law[5] whose goal was, once and for all, to impose an affirmative responsibility on local governments to manage land uses in ways that protected water quality in the Bay region. This law established a state agency to oversee the implementation of the program, which was to be carried out by a new set of local boards in each Bay area locality. The law extended and surpassed the previous authority embedded in the Wetlands law. Later, in the 1990s, the Wetlands law was extended to cover non-tidal wetlands as well.

Meanwhile, some local governments were pressuring the state legislature for more control over their communities' development. Virginia is a Dillon Rule state, so specific authority for land use controls, such as the provision for impact fees on development, must be requested by localities and granted by the state. This is a subject for a paper in its own right as the complexities and politics of such legislation and regulation are myriad.

In recent years there has been more progress to advance the quiet revolution, and it has been accomplished in an unusual, unexpected, and unprecedented way: by use of the state's power to develop its transportation system. Since 2006, Virginia has developed an innovative and much-improved system for coordinating state transportation planning and local land use decisionmaking, and in the process has done more to assert the state's legitimate role in land use planning than almost anything else it has tried over the decades since the Bosselman report.

The state of Virginia accomplished this by a skillful combination of "carrot and stick" involving road fund investment policies and congestion-reduction strategies. One of the biggest challenges facing transportation planners is continued growth in population and development of Virginia, and as a result, the need to make better land use decisions. Improving the coordination between transportation and land use is imperative.

One key step in that direction was the development of traffic impact analysis requirements. Too often, local governments considered development proposals without accurate information on the traffic impacts of the proposed development. In 2006, the General Assembly of Virginia directed the Virginia Department of Transportation (VDOT) to develop Traffic Impact Analysis regulations.[6] These regulations require that all developments with a substantial impact on the state highway network use VDOT's statewide, uniform standards to analyze the impacts of the development on the transportation network. The first application of this regulation to a major development in northern Virginia developed sufficient information to cause the Board of Supervisors to reject a major new residential development because of its extraordinary impact on the local roads.[7]

Another improvement was to update the state's access management standards. Curb cuts and traffic signals have a significant impact on the capacity of highway corridors. Commercial growth frequently occurs along such corridors and tends to increase the number of entrances and signals along such roads. Right turns into and out of business entrances, left turns, and traffic signals all contribute to slowing traffic flow and reducing the capacity of these highways. In 2007, the Virginia General Assembly approved bills that require VDOT to establish new standards to manage access to state highways "through the control of and improvements to the location, number, spacing, and design of entrances, median openings, turn lanes, street intersections, traffic signals, and interchanges."[8] The principal purpose of these regulations, adopted by the Commonwealth Transportation Board, effective July 1, 2008, is to preserve the public investment in existing roadways by maximizing their performance, as well as to reduce the need for new highways and road widening by improving the performance of the existing network. The growth management and environmental benefits of such goals being realized are substantial.

Also in 2007, the legislature passed a bill addressing "urban development areas."[9] This law requires high growth localities to establish urban development areas (UDAs) to allow for concentration of dense development. A UDA is an area that is appropriate for dense development because of its proximity to transportation facilities and existing development. Residential densities must be at least four dwelling units per acre within a UDA and must also incorporate the principles of "new urbanism," including reduced street width, reduced setbacks, and a mix of land uses.

This kind of compact development encourages and promotes walking and cycling, more efficient transit services,

4. Chesapeake Bay Protection Agreement among D.C., Maryland, Pennsylvania, Virginia, and EPA.
5. Chesapeake Bay Preservation Act (1988).
6. Senate Bill 699.
7. In Virginia, virtually all roads in developments are taken into the state system as soon as they are constructed, and thus the state, not the local government, must maintain them. The state has both a programmatic and a financial interest in getting land use right.
8. Senate Bill 1312; House Bill 2228.
9. House Bill 3202.

and fewer vehicle miles traveled. In May 2009, the Commonwealth Transportation Board approved funding for a UDA Planning Grant Program. This state funding will enable local governments to employ consultant services for assistance in designating UDAs and revising local ordinances to combine the principles of new urbanism with traditional neighborhood design. While this might also promote "green building," it is the transportation goals that are driving this quiet revolution.

House Bill 3202 also authorized the same high-growth localities to implement road impact fees to help pay for the cost of new transportation infrastructure in order to offset the impacts of new development. Prior to this bill, localities were limited to requesting voluntary contributions from developers for improvements to the transportation system. Such properly implemented road fee programs can help reward developments that minimize the impact on the road network and assure that all development, not just those requiring a rezoning, pay their proportional share of costs for improving the road system.

Unlike most states, Virginia is responsible for maintaining most local subdivision streets. The state almost always accepted streets for perpetual public maintenance without considering the overall public benefit they provided. This frequently resulted in a network of one-way-in and one-way-out street networks that forced all trips to use the regional highway network to get from one subdivision to another or to a local shopping center. The bottlenecks that result from such design are numerous and cause delays, inconvenience, and pollution. The Virginia General Assembly passed legislation requiring new Secondary Street Acceptance standards, which were then adopted by the Commonwealth Transportation Board in February 2009. These new standards aim to ensure that streets accepted for perpetual state maintenance provide public benefit. Now, for example, streets in new developments must connect to adjacent developments to allow for local trips to use the local streets and thus disperse traffic.

Finally, in 2009 the General Assembly unanimously adopted legislation that included recommendations from the state Climate Commission relating to transportation and land use.[10] The new law requires that the Statewide Long Range Transportation Plan explicitly consider regional accessibility to promote urban development areas as major components of the plan, and that VDOT work with regional organizations (such as Regional Planning District Commissions and Metropolitan Planning Organizations) to develop regional transportation and land use performance measures. Regional organizations will use these measures to analyze the impacts of land use on the transportation network. This law also provided VDOT with the authority to establish standards for the coordination of transportation and land use planning to promote commuter choice and transportation system efficiency.

The "quiet revolution" anticipated by Bosselman and Callies continues. It is surprising sometimes how it occurs. The necessity to improve and maintain a 21st century multimodal transportation system that moves people and goods to their destinations in environmentally responsible ways has quietly transformed the relationship and made the connection between local land use and state transportation planning and management.

10. Senate Bill 1398; House Bill 2019.

ARTICLE

Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future

by Richard J. Lazarus

Richard J. Lazarus is the Justice William J. Brennan Jr., Professor of Law and the Faculty Director of the Supreme Court Institute at Georgetown University. He has published articles and books on a wide variety of environmental law topics, with the challenges of environmental lawmaking serving as a frequent theme in his scholarship.

During the next four years, the new President, Barack Obama, and the new Congress are expected to join together in the first serious effort in the United States to enact sweeping national legislation to address global climate change. If they are successful, federal climate change legislation will be the first major environmental protection law in almost two decades, dating back to the Clean Air Act Amendments of 1990.[1] Given the enormity of the undertaking necessary to address climate change, the passage of federal climate change legislation will rival in historic significance one of the nation's greatest lawmaking moments—the passage in the 1970s of a series of extraordinarily demanding and sweeping pollution control and natural resource conservation laws.

The inherent problem with such lawmaking moments, however, is just that: they are moments. What Congress and the President do with much fanfare can quickly and quietly slip away in the ensuing years. This is famously so in environmental law.[2]

This Article's central thesis is that making it easy for subsequent lawmakers to unravel, undermine, or even formally change existing law is not always desirable, and it is certainly not an essential feature of our democratic lawmaking system. Lawmakers should instead be understood as possessing the authority to anticipate and respond in the first instance to the dynamic nature of lawmaking and its related challenges. To be sure, current lawmakers may well be making it more difficult for future legislators and agency officials to substitute their views of sound policy for the judgment of past lawmakers. Current lawmakers would not be doing so to enrich themselves at the expense of future generations. Instead, given the potentially catastrophic consequences of failing to reduce greenhouse gas emissions over the longer term, they would be acting for the very different purpose of safeguarding the ability of future generations, including their elected representatives, to have far greater control over their own lives. This is an especially legitimate basis for imposing lawmaking restraints notwithstanding their undemocratic effects.

The critical lesson for climate change legislation is that the pending lawmaking moment must include the enactment of provisions specifically designed to maintain the legislation's ability to achieve its long-term objectives. Climate change legislation is peculiarly vulnerable to being unraveled over time for a variety of reasons, but especially because of the extent to which it imposes costs on the short term for the realization of benefits many decades and sometimes centuries later. Because of its fundamentally redistributive character, there will invariably be politically and economically powerful interests, unhappy with the short-term costs of climate change legislation, seeking to relax the law's requirements either formally or informally. It is therefore not enough for Congress to enact a law that mandates tough, immediate controls on greenhouse gas emissions. Nor is it enough for Congress to build into the new law strong economic incentives that render more palatable the changes in business and individual behavior necessary for those mandates to be accomplished and promote overall economic efficiency.

Much more is needed. For climate change legislation to be successful, the new legal framework must simultaneously be flexible in certain respects and steadfast in others. Flexibility

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Author's note: A paper presented at the International Studies Association 48th Annual Convention in Chicago on March 2, 2007, first introduced me to the notion of characterizing climate change as a "super wicked problem." See infra *note 6 and accompanying text.*

1. Pub. L. No. 101-549, 104 Stat. 2399 (codified in scattered sections of 42 U.S.C.).
2. *See* Daniel A. Farber, *Taking Slippage Seriously: Noncompliance and Creative Compliance in Environmental Law*, 23 Harv. Envtl. L. Rev. 297, 298-99 (1999); *see also* Richard J. Lazarus, *Congressional Descent: The Demise of Deliberative Democracy in Environmental Law*, 94 Geo. L.J. 619, 638-52 (2006).

is absolutely essential for climate change legislation in light of the enormity of the undertaking, both in its temporal and spatial reach, and the surrounding uncertainty concerning the wisdom of specific regulatory approaches. Yet the basic legal framework and legal mandate must also be steadfast enough to be maintained over the long term, notwithstanding what will be an unrelenting barrage of extremely powerful short-term economic interests that will inevitably seek the mandate's relaxation.

To that end, the law will need to include institutional design features that allow for such flexibility but insulate programmatic implementation to a significant extent from powerful political and economic interests propelled by short-term concerns. Such design features will include "precommitment strategies,"[3] which deliberately make it hard (but never impossible) to change the law in response to some kinds of concerns. At the same time, the legislation should also include contrasting precommitment strategies that deliberately make it easier to change the law in response to other longer-term concerns that are in harmony with the law's central purpose, which is to achieve and maintain greenhouse gas emissions reductions over time.

Directed to all three branches of government, such institutional design features should therefore be deliberately asymmetric, making it easier to change the law in one substantive direction rather than another. Like the board game Chutes and Ladders, the design of climate change law should include *chutes* that make it harder for certain kinds of changes to be made and *ladders* that make it easier for other kinds of changes to be accomplished and for the overall statutory purpose to be achieved over time. Climate change law should further include a series of other structural features deliberately designed to keep the statute on track over time within the executive branch in particular. These features include a series of *requirements for consultation* with other agencies, scientific advisory committees, and stakeholders more insulated from short-term political pressures; *statutory and regulatory hammers* and *judicial review provisions* that ensure timely implementation; and *preemption triggers* that accommodate the prerogatives of competing sovereigns while also exploiting the resulting tension as leverage to further climate change policy.

The purpose of this Article is to explain why such asymmetric institutional design features are a critical, legitimate aspect of global climate change legislation here in the United States and how such features might operate.

I. The Challenges of Climate Change Legislation: A "Super Wicked Problem"

Even once one accepts the current scientific consensus that significant global climate change is happening, human activities are a significant contributing cause of that change, and the associated public health and welfare impacts are sufficiently serious to warrant climate change legislation,[4] crafting that legislation is extraordinarily difficult. Scholars long ago characterized a public policy problem with the kinds of features presented by climate as a "wicked problem" that defies resolution because of the enormous interdependencies, uncertainties, circularities, and conflicting stakeholders implicated by any effort to develop a solution.[5]

Climate change has been fairly described as a "super wicked problem" because of its even further exacerbating features.[6] First, time is not costless, so the longer it takes to address the problem, the harder it will be to do so.[7] Another problematic characteristic of climate change is that those who are in the best position to address the problem are not only those who caused it, but also those with the least immediate incentive to act within that necessary shorter timeframe.[8] A third feature is the absence of an existing institutional framework of government with the ability to develop, implement, and maintain the laws necessary to address a problem of climate change's tremendous spatial and temporal scope.[9] They present significant obstacles both to the enactment of climate change legislation in the first instance and to its successful implementation over time.

The nature of U.S. lawmaking institutions presents obstacles to the enactment of climate change legislation and its maintenance over time. The kind of law needed to address climate change is precisely the kind of law—because of its enormously redistributive implications—that our lawmaking system deliberately makes difficult to enact in the first instance. Our lawmaking system also renders such laws especially vulnerable to second-guessing and derailment over time by Congress, executive branch officials, and judicial review.[10]

3. *See infra* note 13 and accompanying text.
4. The purpose of this Article is not to rehash the threshold question of whether human activities causing global climate change are sufficiently serious to warrant climate change legislation that seeks a major reduction of greenhouse gas emissions. In light of recent scientific studies, this Article assumes the propriety of such legislation and considers the next step of how best to draft that legislation to accomplish its goals. *See* Intergovernmental Panel on Climate Change, *Summary for Policymakers*, *in* Climate Change 2007: Impacts, Adaptation, and Vulnerability 7, 8-22 (Martin Parry et al. eds., 2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-spm.pdf (last visited June 23, 2010) (summarizing the "impacts of climate change on natural, managed and human systems" and the adaptability and vulnerability of those systems); Intergovernmental Panel on Climate Change, *Summary for Policymakers*, *in* Climate Change 2007: The Physical Science Basis 1-18 (Susan Solomon et al. eds., 2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf (last visited June 23, 2010) (summarizing findings on global climate change and presenting options and long-term perspective to policymakers).
5. *See generally* Horst W.J. Rittel & Melvin M. Webber, *Dilemmas in a General Theory of Planning*, 4 Pol'y Sci. 155, 160-69 (1973) (introducing the term "wicked problems" to describe the nature of social policy problems); *see also* Jeff Conklin, Dialogue Mapping: Building Shared Understanding of Wicked Problems 3-40 (2006).
6. *See* Kelly Levin et al., Playing It Forward: Path Dependency, Progressive Incrementalism, and the "Super Wicked" Problem of Global Climate Change 8-10 (July 7, 2007) (unpublished manuscript, on file with author), *available at* http://environment.yale.edu/uploads/publications/2007levinbernsteincashoreauldWicked-Problems.pdf.
7. *See id.* at 8-9.
8. *See id.* at 9.
9. *See id.*
10. *See infra* Part III.

II. Climate Change's Lawmaking Moment and the Propriety of Precommitment Strategies

Missing from the current debate on Capitol Hill concerning climate change legislation is any meaningful consideration of the need for climate change laws that are not just momentary. The requirements of federal climate change legislation must be sufficiently steadfast to resist, over the longer term, the constant barrage of pressures launched by economically and politically powerful interests seeking to delay and relax the law's proscriptions for their own short-term gain. But it would be no less of a mistake for the law to be wholly inflexible and not subject to revision. Precisely because the effectiveness of any climate change law depends on its success over the long term, the law must admit the possibility of significant legislative or regulatory change in light of new information and changing circumstances.

The solution to this lawmaking conundrum is the careful use of asymmetric lawmaking processes designed to make some kinds of future lawmaking extremely hard to accomplish and other kinds much easier. Asymmetry will overcome the skewing that otherwise exists in our lawmaking fora that favors those with short-term interests over those with long-term interests. Anticipatory measures that change the design of normal lawmaking processes can make it harder for those naturally more powerful to secure the change in law they seek and also make it easier for those naturally less powerful to safeguard their competing interests.

The obvious objection to any such deliberate modifications of lawmaking processes, especially those that make future lawmaking more difficult, is that they are antidemocratic. These modifications allow the views of existing majorities to trump the views of future majorities who may well view sound public policy very differently. The shorthand reference to this objection, of course, is that the dead hand of the past or present should not be able to govern the future.

There are three compelling reasons why the dead hand concern is not persuasive as applied to the need for substantial lawmaking restraints in federal climate change legislation. The first is that such restraints, notwithstanding their seemingly antidemocratic implications, have a long and widely accepted history in domestic law, ranging from the Constitution's organization of the House and the Senate to a host of existing federal statutes that seek to insulate somewhat certain decisions from politics.[11] Second, the lawmaking restraints in federal climate change legislation would be deliberately asymmetric in order to further the options available to future generations, not restrict them. The final justification relates to the sheer impracticalities of failing to address over the longer term the threats that climate change now poses. Otherwise, current lawmakers will undercut the autonomy of future majorities by subjecting them to a natural environment that sharply curtails their options.

11. *See infra* Part II.B.

A Longstanding Tradition of Precommitment Strategies to Restrain Future Lawmaking

Lawmaking restraints in response to some kinds of especially challenging lawmaking problems are a well-established feature of lawmaking referred to as precommitment strategies.[12] The lawmaking structure and laws of the United States are riddled with precommitment strategies, many of which are clearly intended to anticipate likely errors in human judgment that might otherwise lead to systematic errors in lawmaking.[13]

Our constitutional system deliberately makes lawmaking difficult to guard against potential overreaction to more immediate impulses of the moment.[14] Lawmaking authority is dispersed among the legislative, executive, and judicial branches and then further fragmented within each of those branches. Although fragmentation of lawmaking authority poses obstacles to climate change legislation, such fragmentation was designed, ironically, to prevent excessive lawmaking by present generations that would effectively bind the future.

B. The Propriety of Using Precommitment Strategies to Overcome Perceived Defects in Our Federal Lawmaking System

There is also significant historical precedent for modifying our nation's normal lawmaking system in response to perceived tendencies of our particular form of representative democracy to achieve unsound results in addressing certain kinds of problems.[15] One such tendency, also implicated by climate change law, is the potential domination of lawmaking processes by those seeking to satisfy short-term, more narrowly defined interests at the expense of longer-term concerns.

For instance, Congress sometimes delegates lawmaking authority to executive branch agencies to remove members of Congress from especially difficult, politically controversial decisions that might upset their constituents because of the decisions' short-term and narrowly focused consequences.[16] The same policy concerns have prompted Congress to include safeguards in the organization of executive branch

12. *See* Samuel Freeman, *Reason and Agreement in Social Contract Views*, 19 Phil. & Pub. Aff. 122, 143 (1990); Thomas C. Schelling, *Enforcing Rules on Oneself*, 1 J.L. Econ. & Org. 357, 363-64 (1985); R.H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*, 23 Rev. Econ. Stud. 165, 165, 173 (1955); Richard H. Thaler & H.M. Shefrin, *An Economic Theory of Self-Control*, 89 Pol. Econ. 392, 396-97 (1981).

13. *See* Jeffrey J. Rachlinski & Cynthia R. Farina, *Cognitive Psychology and Optimal Government Design*, 87 Cornell L. Rev. 549, 554, 589 (2002).

14. *See* The Federalist No. 10 (James Madison), Nos. 15, 51 (Alexander Hamilton); Jonathan R. Macey, *Cynicism and Trust in Politics and Constitutional Theory*, 87 Cornell L. Rev. 280, 296-99 (2002). These protections can be seen as counteracting heuristics and other cognitive biases. *See* William N. Eskridge Jr. & John Ferejohn, *Structuring Lawmaking to Reduce Cognitive Bias: A Critical View*, 87 Cornell L. Rev. 616, 639 (2002).

15. Of course, what constitutes "unsound" results often lies in the eye of the beholder. *See* Terry M. Moe, *The Politics of Structural Choice: Toward a Theory of Public Bureaucracy*, *in* Organization Theory: From Chester Barnard to the Present and Beyond, 116, 136, 138 (Oliver E. Williamson ed., 1990); Matthew D. McCubbins et al., *Administrative Procedures as Instruments of Political Control*, 3 J.L. Econ. & Org. 243, 261, 264-71 (1987).

16. *See* Cass R. Sunstein & Edna Ullmann-Margalit, *Second-Order Decisions*, 110 Ethics 5, 17 (1999).

agencies that insulate the agencies from shortsightedness and other likely cognitive errors in judgment.[17]

C. The Practical Consequences of Global Climate Change and Their Impact on Future Generations

The principal argument against precommitment strategies is that the present should not be able to bind the future.[18] No doubt that argument has force in some contexts. But no less certainly it possesses comparatively little force if the very purpose of using precommitment strategies is, as in federal climate change law, to *preclude the present from binding the future*.

Climate change legislation seeks primarily to protect the *future* at the expense of the *present*. The most serious threat that the present poses to the future is the potential devastation and global destabilization that can occur in the *absence* of legislation with such precommitment strategies.

The failure to enact and maintain climate change laws may also have irreversible consequences that would not only as a practical matter bind future generations but also potentially undermine their ability to govern themselves using the full range of options required for greater autonomy. It would be tragically wrong to posit that protection of the political prerogatives of the future precludes current generations from adopting laws that seek to preserve the options of future generations.

III. Precommitment Strategies for Federal Climate Change Legislation

For federal climate change legislation, asymmetric precommitment strategies will be necessary because of the tremendous lawmaking challenges presented by the science of climate change in combination with human nature. Some strategies should be focused on making it harder for otherwise disproportionately powerful short-term economic interests to undermine the legislation's implementation. Other strategies should, conversely, be designed to make the law's terms susceptible to influence by disproportionately politically weaker groups, in particular those seeking to protect the diffuse interests of future generations.

Described below are some preliminary ideas, many of which are traceable to strategies that Congress has previously embraced in other contexts. The ideas include tools such as *interagency, scientific advisory, and stakeholder consultation requirements* to promote certain voices; *statutory and regulatory hammers* to keep statutory implementation on track; *federal preemption and non-preemption triggers* to provide for regulatory innovation and to recognize state sovereign prerogatives; and *limited and enhanced judicial review provisions* to promote the effectiveness of oversight by potentially underrepresented interests and to diminish the power of those who are potentially unduly influential.

Absent these kinds of asymmetric precommitment strategies, climate change legislation will most likely be eroded by short-term economic and political pressures.

A. Congress

The most significant restraint on Congress' ability to enact sweeping revisions to federal climate change legislation is already in place. It is much harder to achieve congressional passage of a significant law than to prevent its passage; there are many opportunities within existing legislative procedures for less powerful political interests to block a statute's enactment, even a statute supported by powerful political constituencies.[19]

There is a strong tendency in our existing legislative framework against destabilization of existing laws, including laws that may have been highly controversial when originally enacted.[20] Some have speculated that Congress could deliberately make more difficult the subsequent passage of legislative amendments designed to undermine the law's ability to achieve its objectives, while still allowing for the possibility that a whole new policy approach might be necessary. This flexibility could be accomplished by making the political cost of such amendments high enough to ensure that they could be enacted only with widespread and fairly overwhelming political support and therefore beyond the easy reach of powerful political forces driven by only short-term interests.

One potentially powerful technique would be to couple domestic climate change legislation with the United States' agreement to international treaty obligations by making clear that the former was intended to comply with obligations under the latter. Such international treaty obligations, although subject to abrogation, would significantly raise the political cost of any retreat from domestic legislation designed to fulfill those international obligations. Another possibility would be to design federal climate change legislation that would create a powerful political constituency with a strong economic incentive favoring the legislation's preservation. Such provisions should not be difficult to create. The tradable emissions program is expected to generate billions of dollars in revenue from the sale of emissions rights.[21] Recipients of those funds will have a strong incentive to resist legislative amendments that threaten the continued availability of such financial support.

A more finely tuned design feature to resist future amendments proposed by narrow interest groups to relax the law's requirements would be to include language in the original bill that directly impeded the passage of such amendments or at least limited their effectiveness once passed. For instance,

17. *See* Alan M. Jacobs, Ties That Bind: Institutions, Uncertainty, and Politics of Long-Term Constraint 29-30 (unpublished manuscript, on file with author), *available at* http://faculty.arts.ubc.ca/Jacobs/Jacobs%20Constraints%20Paper%20-%20Workshop.pdf.
18. *See supra* notes 15-17 and accompanying text.
19. Rui J.P. de Figueiredo Jr., *Electoral Competition, Political Uncertainty, and Policy Insulation*, 96 Am. Pol. Sci. Rev. 321, 322 (2002) ("Because of the multiplicity of veto points in the legislative process under a separation of powers system, new laws are extremely difficult to pass, for a minority can block new legislation.").
20. *Cf.* William N. Eskridge Jr. & John Ferejohn, *Super-Statutes*, 50 Duke L.J. 1215, 1216 (2001) (describing how super-statutes "'stick' in the public culture").
21. *See* Peter Crampton & Suzi Kerr, *Tradeable Carbon Permit Auctions: How and Why to Auction Not Grandfather*, 30 Energy Pol'y 333, 334 (2002).

the original legislation could provide that future efforts to relax emissions reduction requirements would be legal only if accompanied at the time of congressional consideration by a congressionally delegated entity's formal analysis of the impact of the proposed relaxation on the law's ability to achieve its goals. The most serious constitutional objections to such a requirement could be addressed by making clear in the initial legislation that a future Congress would retain authority by majority vote to lift that procedural requirement completely or as applied to a particular amendment.

A lesser, but also potentially effective, limitation would be for the original legislation to declare a canon of construction for the statute's interpretation. For instance, the law could provide that any future amendments designed to relax the law's requirements for any particular activities would be presumed to last no more than a statutorily specified number of years, unless the amendment expressly provided otherwise.

A different tack would be to limit more directly the lawmaking avenue most susceptible to being used by powerful, narrowly focused interests seeking to gain short-term economic advantage: the appropriations process. One possible anticipatory response would be to include the above procedural hurdles or canons of statutory construction but target them directly to laws enacted exclusively through the appropriations process. The justification would be the shared understanding that the appropriations process does not lend itself to the careful deliberations generally warranted for major changes in substantive law.[22]

A far bolder move, however, would be to insulate parts of the greenhouse gas emissions reduction and climate change adaptation programs from the appropriations process altogether. What Congress did with the Federal Reserve Board provides the legislative precedent. Implementation of federal climate change legislation will, assuming a tradable emissions program, generate billions of dollars in revenue.[23] Some of that revenue could be used to insulate the especially vulnerable aspects of the greenhouse gas regulation program from the appropriations process and therefore the short-term economic interests that tend to dominate that particular lawmaking avenue.

B. Executive Branch Lawmaking

There are many ways to design climate change legislation in anticipation of problems that may arise in the executive branch's administration of the law. Some measures could be designed to insulate agency officials to some extent from political pressures, especially those pressures likely to derive from short-term economic concerns, which undermine the law's effectiveness.[24] Other measures could be crafted to enhance the influence of interests groups that are concerned about protecting future generations but which otherwise lack the necessary economic or political clout. Some of the possibilities worthy of consideration are catalogued and described below.

1. Insulating (Somewhat) Agency Officials From Politics

A variety of measures could be used to try to insulate agency officials from the short-term political pressures that could undermine a climate change statute's effective, fair, and impartial administration. The purpose of such insulating measures is to temper, not eliminate, the influence of politics on statutory implementation.[25] For instance, federal climate change legislation could define in some detail the qualifications and tenures of specific agency officials charged with particularly important and sensitive statutory responsibilities. Several possibilities are described below.

a. *Staggered terms of agency official appointment* that cut across presidential administrations and thereby promote political autonomy represent a classic legislative technique for reducing political influence. The staggered term alone sends a strong message that the person to be chosen is not a standard political appointee for whose appointment the President is owed heightened political deference.[26] The individual's qualifications are instead intended to transcend political loyalty and reflect an expertise grounded more directly in the statutory responsibilities and fiduciary responsibilities of the agency position under consideration.[27]

b. *Length of the agency official appointment* is an important related design feature for promoting agency autonomy. The longer the appointment, the more a government official will potentially feel insulated from political pressures surrounding the implementation of the law for which she is responsible.[28] For the purposes of implementing climate change law, in particular, longer agency official terms are quite important because they are more in keeping with the longer-term agenda of climate change.[29]

c. *Grounds for agency official removal* are another potentially effective design feature. Because political pressure on agency officials implementing climate change law is especially great, there might even be reason to limit their removal by procedural mechanisms beyond the substantive requirement of "for cause." There are myriad ways that this

22. *See* Lazarus, *supra* note 3, at 632-33.
23. *See* Crampton & Kerr, *supra* note 21, at 334 ("[A]n efficient auction could raise $125 billion annually."); Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 Harv. Envtl L. Rev. 293, 317 n.94 (2008).
24. *See* Stephen Breyer, Breaking the Vicious Circle: Toward Effective Risk Regulation 62-63 (1993) (discussing the advantages of insulation of agencies in terms of "rules, practices, and procedures").
25. *See id.* at 77-78.
26. *See* B. Dan Wood & John Bohte, *Political Transaction Costs and the Politics of Administrative Design*, 66 J. Pol. 176, 185-86 (2004) (noting the effect of staggered terms, as well as other devices, on agency autonomy versus "political responsiveness").
27. There is already plenty of precedent for such an approach to appointment of agency officials. The Federal Reserve Board is an obvious example. *See* 12 U.S.C. §244; Bd. of Governors of the Fed. Reserve Sys., The Federal Reserve System: Purposes and Functions 3 (9th ed. 2005), *available at* http://www.federalreserve.gov/pf/pdf/pf_complete.pdf.
28. *See* Wood & Bohte, *supra* note 26, at 186 (noting the potential effect of term length on the level of agency autonomy).
29. *See* Amihai Glazer & Vesa Kanniainen, *Short-Term Leaders Should Make Long-Term Appointments*, 14 Int'l Tax Pub. Fin. 55, 56-57 (2007) (discussing the importance of long-term appointments in general).

design feature could be crafted to narrow the grounds for removal while maintaining the safety valve that allows for removal in case of an extreme circumstance of dereliction of duty or judgment.[30]

d. *Agency official qualifications and disqualifications* could also be statutorily prescribed. Such express qualifications and disqualifications help to ensure that the best-qualified individual receives an appointment. The qualifications (and disqualifications) serve to limit significantly those who can be brought to the President's attention as possible nominees, empower the Senate to take more seriously its role in confirmation, and provide senators with a touchstone for evaluating credentials.

2. Structuring the Implementation Process to Diminish the Influence of Short-Term Interests Likely to Be Unduly Influential and to Promote Consideration of Longer-Term Interests Otherwise Unlikely to Receive Their Due Weight

A second category of institutional design features pertains to techniques for ensuring that certain kinds of factors are given due consideration and that others are not given undue weight during the executive branch's implementation of climate change legislation. These techniques can promote accountability, deliberativeness, impartiality, and transparency and ensure that specific factors that are anticipated to be undervalued instead receive their due.[31] Several possibilities are described below.

a. *Interagency consultation requirements* are one standard mechanism for Congress to promote a fuller consideration of relevant factors and therefore reduce the prospects of a narrow, short-term interest hijacking a law's implementation.[32] Formal consultation not only provides the action agency with relevant information that may prompt the agency to reach a different decision, but it also places the consultant agency's views in the administrative record.[33] As a result, should the agency taking action ignore the consultant agency's counsel or refuse to engage in the consultation altogether, it may very quickly find itself vulnerable to a successful lawsuit brought by those disappointed by the agency's decision.[34]

Such an interagency consultation requirement might well be appropriate for climate change legislation given the wide-ranging implications of climate change rules and therefore the number of other agency offices with potentially relevant expertise. It could also be deliberately enlisted to make it difficult for any one agency to create exceptions or otherwise modify the climate change law's requirements.

b. *Creation of a new expert governmental entity* would be an even more direct way for Congress to ensure that certain interests are given due weight during agency implementation of climate change legislation. This office would provide an authoritative voice guided by career government experts who were more insulated from political pressures.[35] For climate change, Congress could take the bold step of creating an office with the formal responsibility of safeguarding the interests of future generations. That office could be provided with a range of authorities and responsibilities, from mere reporting authority and formal consultation rights to actual veto authority over certain kinds of decisions.

c. *Provisions for consideration of more neutral, objective scientific expertise* during statutory implementation can also provide a means for Congress to guide a statute's future implementation within the executive branch. Expert scientific consultation can both diminish the influence of politically powerful short-term economic interests and promote consideration of longer-term consequences if supported by scientific evidence. With the necessary safeguards to protect against the natural tendency of special interests to seek to capture the scientific review process itself, federal climate change legislation should be able to offer multiple opportunities for Congress to build into the implementation process expert scientific consultation requirements that keep the statute on its long-term track and prevent its short-term derailment.[36] Such expert scientific advice can serve, moreover, as an especially important check to ensure that any future efforts to significantly redirect the statutory focus based on a newly discovered understanding of climate science or available technology find support in actual scientific advances rather than political science fiction.[37]

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30. A statute might describe the removal grounds in some detail to make it clear that the grounds are not entirely open-ended. One could create a procedure for considering a claim that grounds for removal were present and provide for a board to review the merits of that claim. The board members themselves could represent a cross-section of relevant perspectives, including those more likely to be sensitive to longer-term concerns.
31. *See* Adrian Vermeule, Mechanisms of Democracy: Institutional Design Writ Small 4-5 (2007) (proposing mechanisms that advance these core values of democratic constitutionalism).
32. Interagency consultation requirements are a regular feature of environmental statutes. For instance, the Endangered Species Act (ESA) requires that federal agencies subject to §7 of the Act consult with the Secretary of the Interior (for terrestrial wildlife or plants) or the Secretary of Commerce (for marine life) if they believe that an endangered or threatened species may be adversely affected by a contemplated agency action. *See* 16 U.S.C. §1536(a)(1), ELR Stat. ESA §7(a)(1).
33. *See id.*
34. *See, e.g.*, Am. Bird Conservancy, Inc. v. FCC, 516 F.3d 1027, 1031, 38 ELR 20052 (D.C. Cir. 2008) (striking down the FCC categorical exclusion of communication towers from National Environmental Policy Act analysis for failing to provide for required consultation with the Fish and Wildlife Service).
35. *See* Breyer, *supra* note 24, at 70-71 (describing the insulation of the French Conseil d'Etat). To some extent, this proposal resembles what EPA Administrator William Reilly did at the close of his tenure. He created the EPA Administrative Appeals Court, which hears and decides appeals of challenges to rulings by EPA administrative law judges. Administrator Reilly adopted this reform for the purpose of "inspiring confidence in the fairness of Agency adjudications." Changes to Regulations to Reflect the Role of the New Environmental Appeals Board in Agency Adjudications, 57 Fed. Reg. 5320 (Feb. 13, 1992).
36. *See* Holly Doremus, *Scientific and Political Integrity in Environmental Policy*, 86 Tex. L. Rev. 1601, 1640-52 (2008) (describing a series of controversies involving alleged political manipulation of science in the administration of environmental laws).
37. *See id.* at 1643-44 (advocating for neutral expert advice to enhance integrity in environmental policymaking).

d. *Participatory rights for selected stakeholders* can also be expressly provided for in the lawmaking process in order to ensure that important but less politically powerful voices are heard during statutory implementation. There is much statutory precedent for such a feature. Some precedents are in the form of federal advisory committees and provide for an advisory function with varying degrees of actual influence.[38] Other bodies' formal authority exists within the statutorily prescribed lawmaking process, such as the scientific committees just described.[39] The Clean Air Act,[40] the Taylor Grazing Act,[41] and the Magnuson-Stevens Fishery Conservation and Management Act[42] all provide instances when Congress sought to provide stakeholders outside the federal government with significant authority in the implementation of a federal statute.

As applied to climate change legislation, however, this kind of design feature would need to be structured completely differently and could be far more effective in promoting its objective. In these prior statutory schemes, Congress provided additional political leverage to already-powerful interests, such as the large commercial fishing interests, which no doubt helped secure the legislation's initial passage.[43] The concern for climate change legislation, however, should be just the opposite: not that long-term interests will trump short-term, but that long-term interests will get bargained away over time by a steady barrage of short-term pressures. For this reason, the kind of stakeholders that would warrant a heightened role in the lawmaking process for climate change would be those who give voice to long-term interests of future generations.[44]

Finally, the role of such stakeholder councils in the implementation of climate change law could also be substantially modified. A council might be alternatively designed to ensure that statutory implementation stays on track, that is, to provide the oversight necessary to make sure that it is not derailed. A council could also be designed to ensure that if new scientific information surfaces indicating that even tougher measures are required, the statute's implementation would be modified accordingly.

3. Maintaining and, if Necessary, Accelerating the Executive Branch's Implementation of Climate Change Legislation

A third category of design features anticipates the many roadblocks that will occur during the process of statutory implementation within the executive branch, especially over the long term. These features deliberately build into the original statutory scheme mechanisms that directly limit the effectiveness of the roadblock. The statutory objective is to prevent the executive branch from frustrating congressional objectives by delaying the law's implementation.

a. For instance, Congress can create a lawmaking shortcut that allows *laws to be made in the absence of executive branch action within a specified time period*. This can occur if Congress would actually prefer executive branch lawmaking but anticipates that roadblocks may prevent the agency from acting in a sufficiently expeditious manner. Both to encourage the agency to act, and to ensure that law is made without undue delay, Congress can create a lawmaking scheme that is triggered by default in the event that the agency fails to act by the statutorily specified deadline. Moreover, an especially demanding congressional scheme that is triggered by default provides powerful economic interests that might normally have been seeking to delay agency lawmaking efforts with every incentive to ensure that the agency meets its deadline.

Drafters of climate change legislation might well want to consider including lawmaking shortcuts that precommit to certain climate change emissions reduction requirements in the absence of the necessary subsequent action taken by the executive branch agency charged with the law's implementation. The potential is considerable that those resisting imposition of climate change emissions reduction requirements will seek to delay their implementation. But by anticipating that potential and precommitting to certain legal standards in the event of delays greater than a specified time period, climate change legislation can effectively both reduce the incentive for such obstructionist efforts and ensure that a lengthy legal vacuum does not result.

b. Congress could also create a lawmaking shortcut by separating the policy question of what standard should apply in a particular factual circumstance from the distinct factual inquiry of whether that circumstance is actually present. A *statutorily prescribed standard triggered by a subsequent agency finding* allows Congress to dictate what the regulatory requirements or other regulatory measures must be to address different degrees of environmental hazards but then leave to another entity the responsibility (and potential political heat) of making the finding that triggers the standard. Congress, in effect, precommits to a series of lawmaking standards that someone else then triggers.

Climate change legislation could utilize this kind of precommitment device. Congress could precommit to increasingly stringent standards depending, for instance, on the

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38. *See* Federal Advisory Committee Act, 5 U.S.C. App. 1 (2006).
39. *See supra* notes 37-38 and accompanying text.
40. Under the Clean Air Act, there are "interstate transport commissions" made up of representatives of state governments and EPA with authority to make recommendations for strategies to address interstate air pollution. 42 U.S.C. §§7506a-c, ELR Stat. CAA §176a-c.
41. Under the Taylor Grazing Act, as supplemented by the Federal Land Policy and Management Act, resource advisory councils consisting of members "representative of the various major citizens' interests concerning the problems relating to land use planning or the management of the public lands" are provided certain formal advisory responsibilities. 43 U.S.C. §1739(a).
42. Pursuant to the Magnuson-Stevens Act, eight regional fishery management councils play a critical role in the Act's administration. *See* 16 U.S.C. §1852. These councils have the primary responsibility for both proposing and then initially allocating individual tradable rights in most fisheries, known as individual tradable quotas. *See id.* §1854(c)(3). Their recommendations become law upon review and approval by the Secretary of Commerce. *Id.* §1854(a).
43. Katrina Miriam Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. Rev. 117, 184-88 (2005); *see, e.g.*, 16 U.S.C. §1852.
44. Alan M. Jacobs, *The Politics of When: Redistribution, Investment, and Policymaking for the Long Term*, 38 Brit. J. Pol. Sci. 193, 218-19 (2008) (commenting on how organized interest groups can "represent one of the few mechanisms forcing governments to take long-run outcomes seriously").

degree of greenhouse gas emissions reductions deemed necessary. This precommitment would allow Congress to make the critical policy determination regarding which kinds and combinations of regulatory measures and economic incentives would be best to achieve different levels of emissions reductions. But at the same time, Congress could leave to a more detached, politically insulated body the decision regarding how serious the climate change problem truly was, how much temperature could rise, and therefore how much reduction of emissions was in fact necessary. Such a scheme has the added benefit of simultaneously allowing for steadfastness in the overall policy objective, for an established legislative decision regarding the distribution of compliance costs, and for flexibility for change in applicable legal requirements in response to the latest scientific information about climate change.

c. A statutory provision for *non-, limited-, or conditional federal preemption* of state climate change law could be another effective technique for ensuring that federal climate change legislation stays on track over the long term. The extent to which federal law preempts state climate change law is likely to be one of the most significant policy disputes in the drafting of the federal legislation during the next four years.[45] Industry's desire for federal preemption of state climate law is one of the reasons why many in the industry affirmatively want federal legislation: to eliminate the potential burden of having to comply with multiple and varying state law requirements.[46] Both the states and many environmentalists, however, believe no less strongly that the state police power authority to address climate change should not be preempted, especially in light of what they perceive as decades of foot-dragging on the issue by the national government.[47]

Congress could draft a federal preemption provision that both strikes a balance between these competing concerns and serves as a very significant check on the federal government's implementation of climate change legislation. For instance, not only could any such provision narrowly define the scope of federal preemption to leave significant room for state law that supplements and in no manner conflicts with federal requirements, but the federal statute could make the ultimate scope of federal preemption expressly dependent on the success of federal efforts. Congress could use any number of benchmarks to measure success or lack of success. The lifting of federal preemption, or the mere threat of a lifting of federal preemption, might well be enough to provide federal officials and industry with the incentives necessary to jumpstart a stalled federal program.

d. Finally, lawmaking design features could even seek to remove altogether anticipated litigation roadblocks to statutory implementation by *limiting judicial review* of some kinds of agency decisions and *promoting judicial review* of other kinds of agency decisions. Congress could define these limits by focusing on types of decisions or types of plaintiffs in determining which kinds of lawsuits threaten timely implementation and which kinds of lawsuits are, by contrast, necessary to spur timely implementation.

IV. Conclusion

Lawmaking moments do not happen very often, at least for environmental law. Soon, however, the nation is likely to have an exceedingly important lawmaking moment with the passage of long-overdue domestic climate change legislation. The ultimate success of that legislation, however, depends on advance recognition by Congress that lawmaking moments are only that—"moments." Congress should, accordingly, include within climate change legislation institutional design features, such as precommitment strategies, that deliberately make it hard for powerful, short-term political and economic pressures to undo that legislation. In application to climate change legislation, moreover, any per se objection to precommitment strategies based on concerns about their antidemocratic effects should go unheeded. Such precommitment strategies are a well-established design feature of our lawmaking processes, embraced both by the Framers of our Constitution and by prior Congresses. If, as here, the impact on future generations of present generations' failing to address climate change is so potentially devastating, the greater threat to future generations by far would be the failure of present generations to restrict lawmaking to safeguard the future.

The challenge to develop the right mix of precommitment strategies is considerable and the risk of any particular law being perversely hijacked can never be eliminated. But through the kind of asymmetric hurdles and shortcuts that I have described, Congress could diminish the risk of short-term pressures undermining whatever legislation it passes and increase the chance that the concerns of future generations would not be forgotten during the decades required for the new law's ambitious objective to be achieved.[48]

45. *See* Daniel A. Farber, *Climate Change, Federalism, and the Constitution*, 50 Ariz. L. Rev. 879, 900-10, 921-23 (2008) (discussing preemption in the context of climate change law).

46. *See* William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. Rev. 1547, 1569-70 (2007); Eric Lipton & Gardiner Harris, *In Turnaround, Industries Seek U.S. Regulations: A Broad Tactical Shift; Trying to Fend Off Suits, Foreign Competitors, and State Efforts*, N.Y. Times, Sept. 16, 2007, at A1.

47. *See* Lisa Heinzerling, *Climate, Preemption, and the Executive Branches*, 50 Ariz. L. Rev. 925, 925-29 (2008); Felicity Barringer & William Yardley, *Bush Splits on Greenhouse Gases With Congress and State Officials*, N.Y. Times, Apr. 4, 2007, at A1.

48. As of the time of this Article's going to press (early 2010), none of the major climate change bills pending before Congress included any significant or systematic efforts to enlist precommitment strategies in the form of either hurdles or shortcuts in anticipation of problems likely to plague the law's subsequent implementation.

Genius vs. Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand"

by Keith Cole

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It may seem unfair, in the wake of the Massachusetts election[1] and *Citizens United*,[2] to look with hindsight at Richard Lazarus' recommendations for drafting federal climate legislation, but given that those recommendations are specifically designed to insulate the legislation from the vicissitudes of time, it is perhaps less so in this instance. It is hard not to conclude that controversial procedural innovations are the last thing we need to add onto this legislation. Rather than burden the legislation with heavy armament to ward off future political pressure, our priority should be to get started in a direction that rewards innovation in products and technologies that decrease our carbon footprint,[3] and leave future battles for the future.

One does not have to be a climate scientist to be concerned about the rate of increase in the concentration of greenhouse gases (GHGs) in the atmosphere.[4] Because energy consumption in today's economy is so closely linked with carbon dioxide emissions,[5] legislation limiting or reversing this trend will affect nearly every business and consumer and must overcome enormous political inertia against change.[6]

There is no question that the timescales involved in the climate debate are significantly larger than other issues confronting Congress.[7] In order for climate legislation to be a success, it must achieve results measured over periods of multiple decades. In this context, Lazarus puts his finger on a fundamental issue for both academics and legislators: how to ensure the continued effectiveness and vitality of the required climate change legislation over time.[8] Part of the answer lies in making the legislation as economically and politically sustainable as possible, while maintaining its environmental effectiveness. This is the approach taken by the U.S. Climate Action Partnership (USCAP), a coalition of national environmental groups and major companies whose recommendations have been reflected in most of the major climate bills to date.[9] Lazarus echoes one of the central

Author's note: This comment represents the personal opinion of the author and does not reflect the position of General Motors.

1. On January 19, 2010, Scott Brown defeated Martha Coakley in the special election to replace Senator Edward Kennedy, becoming the first Republican in 30 years to represent Massachusetts in the U.S. Senate.
2. Citizens United v. Federal Election Comm'n, __S. Ct.__, 2010 WL 183856 (Jan. 21, 2010).
3. The European Commission's Joint Research Centre defines "carbon footprint" as "the overall amount of carbon dioxide (CO_2) and other greenhouse gas (GHG) emissions (e.g. methane, laughing gas, etc.) associated with a product, along its supply-chain and sometimes including from use and end-of-life recovery and disposal." European Platform on Life Cycle Assessment, Carbon Footprint: what it is and how to measure it, *available at* lca.jrc.ec.europa.eu/Carbon_footprint.pdf (last visited June 25, 2010).
4. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10749 (Aug. 2010) [hereinafter Lazarus ELPAR]. A longer version of this Article was originally published at 94 Cornell L. Rev. 1153 (2009) [hereinafter Lazarus full-length].
5. Generally, carbon dioxide is seen as the principle greenhouse gas, although methane may deserve a higher level of legislative attention than it has received to date.
6. In 2007, "[e]nergy-related carbon dioxide emissions account[ed] for over 80 percent of U.S. greenhouse gas emissions." U.S. Energy Information Administration, U.S. Energy-Related Carbon Dioxide Emissions Rose by 1.6 Percent in 2007, http://www.eia.doe.gov/neic/press/press298.html (last visited Feb. 27, 2010).
7. Lazarus ELPAR, *supra* note 4, at 10750.
8. *See id.*
9. USCAP is a coalition of twenty-eight major energy, electric utility, car manufacturing, mining, and environmental groups, as well as other major corporations, including Duke Energy, Exelon, Chrysler, Ford, Dow Chemical, DuPont, General Electric, Siemens, Alcoa, and Rio Tinto. The members have "pledge[d] to work with the President, the Congress, and all other stakeholders to enact an environmentally effective, economically sustainable, and fair climate change program consistent with our principles at the earliest practicable date." USCAP, A Call for Action, *available at* http://us-cap.org/USCAP-CallForAction.pdf (last visited Feb. 28, 2010). This call for action was reaffirmed and expanded in 2009: "[This blueprint is meant to] provide decision makers in the Administration and Congress with a framework for legislation that can achieve [our previously stated objectives]. It is intended as a guide for the development of legislation in the 111th Congress that can become law." USCAP, A Blueprint for Legislative Action, *available at* http://www.us-cap.org/pdf/USCAP_Blueprint.pdf (last visited Feb. 28, 2010). Finally, the Waxman-Markey draft climate bill adopted many of USCAP's recommenda-

elements of the USCAP recommendations, the creation of a tradable emissions program. This would "create a powerful political constituency with a strong economic incentive favoring the legislation's preservation."[10] Such an approach potentially creates a large class of political actors, entrepreneurs, inventors, states, and environmental NGOs, which "will have a strong incentive to resist legislative amendments that threaten" the program.[11]

If only the article had focused more on this point. Rather than exploring ways to further empower those elements of society that can be expected to support the program in future legislative and regulatory battles, the bulk of the article proposes, and seeks to justify the use of, "asymmetric precommitment strategies" comprised of "language in the original bill that directly impeded the passage of [weakening] amendments, or at least limited their effectiveness once passed."[12] Each of these strategies is designed in some way to constrain the decisions of future legislators and regulators in ways believed to organize the program for its long-term success, regardless of which mix of controls it uses.[13] Like zombies from a bad movie, these proposals would stalk future generations, replacing their wisdom with the decisions of the (potentially long-dead) legislators of today.

The Army of Zombies

The common thread of the proposed "asymmetric precommitment strategies" is to aggressively take decisionmaking power away from future stakeholders, and vest it with today's legislators. Many of these suggested innovations are likely to meet resistance in Congress, where it is often politically safer to oppose legislation on procedural grounds to avoid offending constituents on the tough substantive choices. The proposed menu of "asymmetric precommitment strategies" could materially affect the chances of the bill being enacted. And without the "legislative moment," the rest is moot.

But beyond their immediate impact on the vote count, we should ask whether these strategies are the right approach for ensuring the long-term viability of the climate program once it is in place. Should we anchor the long-term viability of the climate program in the constraint of future decisionmakers? Or, rather, should we seek to empower those with a strong economic stake in invention, clean technologies, and low-GHG business models? In short, should we entrust the future to the zombies or the innovators?

I would do without the zombies because they are a rather antidemocratic lot. Lazarus anticipates this concern, and sets out an extended rationale why, in this instance, we should set aside the usual objections to employing the dead hand.

The article lays out three primary justifications for why the usual objections to employing the dead hand should be ignored.[14] The first is that it has an accepted history. Yes, Ulysses tied himself to the mast, but he didn't tie his men's children there.[15] Decisions by Peter sober are probably better than decisions by Peter drunk, but are we so sure that after watching the Copenhagen Conference that the run-up to the next Conference of Parties will meet the test of sobriety?[16] As for the value of our Constitution's deliberate structures that make lawmaking difficult, we already have the Senate. These examples do not make a compelling case for the dead hand.

I am also unconvinced by the effort to portray the climate debate as so unusual that we should, just this once, make exceptions. Climate legislation is not uniquely "super wicked." In fact, the three distinguishing characteristics of "super wicked" problems are not that unique.[17] First, that time is not costless, is a common problem in dealing with trust funds such as Social Security and Medicare, which are going broke. Each year that passes without a resolution simply makes the following year's challenge that much harder. Second, that those who could solve the problem both caused it and have the least immediate incentive to fix it is a feature of many of today's challenges including, to name just a few, sprawl, wealth disparity, and overfishing of the oceans. Third, the absence of an existing government framework to develop, implement, and maintain laws to address a problem of climate change's scope is arguably true of world hunger and terrorism as well. The legislative challenges posed by climate change have common elements with many of today's pressing problems. Thus, the justification of adopting antidemocratic procedures could be applied to all of these problems, were it to be accepted, and we should not be so willing to look the other way on this issue.

While democracy comes in a multitude of flavors, the *sine qua non* of a democratic system is the ability of the governed to jettison those who claim to speak on their behalf. The article proposes legislative and regulatory innovations that are explicitly designed to shift legislative power from future Congresses to today's Congress. If successful, this transfer in legislative authority is irreversible, or at least hard to reverse, by design. As a result, today's representatives, or under some of the proposals, an appointed official or entity, would "represent" future generations. But if those generations are dissatisfied with their representation, they are powerless to jettison their representatives.

The article presents the case for why we should not be concerned with the antidemocratic nature of these measures. It sets out a number of reasons why today's lawmakers are to be trusted to know the future well enough to represent those future decisionmakers and stack the deck accordingly. While this is advanced in the name of preserving the options of future generations, I would rather not burden the legislation

tions including its medium-term target emissions reductions. U.S. House of Representatives, Discussion Draft Summary: The American Clean Energy and Security Act of 2009, *available at* http://energycommerce.house.gov/Press_111/20090331/acesa_summary.pdf (last visited Feb. 28, 2010).

10. Lazarus ELPAR, *supra* note 4, at 10752.
11. *Id.*
12. *Id.*
13. *See id.*
14. *Id.* at 10751-52.
15. Lazarus full-length, *supra* note 4, at 1196.
16. *Id.* at 1197.
17. Lazarus ELPAR, *supra* note 4, at 10750.

with efforts to game future decisions and trust that future Americans will do the right thing.[18]

There are other reasons not to disinter the dead hand. One is that we may not know as much as we think we do. Setting aside the subtleties of exactly how much increasing concentrations will change the climate, where those changes will occur, and when, we may enact legislation that sends us barking up the wrong tree. We assume that mitigation by reducing anthropogenic carbon dioxide emissions is the overriding priority (actually, a specific technique of reducing such emissions), but what if methane plays a much bigger role than we realize? What if cap-and-trade is enacted, but turns out to be a huge mess? What if it turns out to be easier to scrub GHGs from the air than trying to get all the major emitters to stop using coal? What if we should put our money into geoengineering or solar shielding? What if our goose is already cooked and we should focus much more on adaptation? If any of these come to pass, we may well regret having enshrined today's solution with protections against future meddling.

Finally, the article's undercurrent of technological pessimism may be at the root of why it seems troubling. There appears to be a hidden assumption here that the goal of legislation will effectively diminish our economic activity and put developing nations, such as China, at an economic advantage. The possibility that we can meet the climate challenge with the American genius for ingenuity and invention does not appear to be considered by the article. Placing a cost on carbon and internalizing it into our economy will certainly bring out political opponents. But it will also create opportunities for innovation in low-GHG products and technologies, along with business opportunity, and the jobs that come with it..

If you believe there is a deep well of creativity, waiting to respond to these market signals, then you can envision climate legislation that will also create strong constituencies within the business community to support its continued implementation and enhance the long-term political sustainability of the climate program.

If, on the other hand, limiting GHG emissions is really a matter of rationing energy and limiting economic growth then there really is no viable political constituency to sustain climate legislation, and fortifying it with lots of procedural roadblocks makes perfect sense. It is just a matter of how many dead hands you can bring to the table.

I'll take my chances with the living.

18. Several recommendations revolve around the elevation of select stakeholders to privileged status. *Id.* at 10755. More radical is the "bold step of creating an office with the formal responsibility of safeguarding the interests of future generations," that is envisioned as potentially having "actual veto authority over certain kinds of decisions." *Id.* at 10754

Comment on *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*

by Mary D. Nichols

Mary D. Nichols was appointed by Gov. Arnold Schwarzenegger as the Chairman of the California Air Resource Board in July 2007 and previously held that position under Gov. Jerry Brown from 1978 to 1983. Among other positions, she served as the Assistant Administrator for Air and Radiation in the U.S. Environmental Protection Agency under President Bill Clinton, as Secretary for California's Resources Agency under Gov. Gray Davis, and as Director of the University of California, Los Angeles, Institute of the Environment.

Perhaps Congress should throw up its hands and move on to something more manageable than global climate change. Richard Lazarus asserts that the challenges of enacting effective national strategies for mitigating and adapting to changes in the Earth's climate are not just "wicked," but "super wicked," meaning they defy resolution.[1] He enumerates seemingly insurmountable challenges, such as "the absence of an existing institutional framework of government with the ability to develop, implement, and maintain the laws necessary to address a problem of climate change's tremendous spatial and temporal scope."[2] Imagine trying to design a house to last decades without studs, beams or columns.

Fortunately, our federal lawmakers are not as ill-equipped for the climate challenge as Lazarus' article might suggest. In fact, they already have at hand a sturdy, time-tested frame to support a good part of the United States' response to climate change. Congress engineered it 40 years ago in the form of the Clean Air Act (CAA or the Act).[3] That landmark law and its subsequent amendments incorporate several of the "precommitment strategies"[4] and other designs that Lazarus recommends for effective federal climate legislation.

Congress amended the Act substantially only twice since 1970.[5] This fact alone attests to the law's strength of being at once flexible and protective against powerful short-term impulses to unravel it.[6]

One of the greatest successes of the CAA has been its ability to catalyze innovation that achieves emission reductions faster and more cheaply than industry had expected. Rigorous performance-based standards with long lead times and phase-in periods have allowed industry to unleash its engineering ingenuity on emission controls and implement them cost-effectively.

I have studied, implemented and worked with the CAA for more than 30 years. As a state air agency official from a state that has often taken its own path and made giant strides toward clean air since the 1970s, I have many ideas for improvement. In my experience, the Act has proven extraordinarily effective in protecting the health and prosperity of our nation. And I have every reason to believe that it will play a vital role in addressing climate change. The Act offers the best available strategies to accelerate the nation's transition to clean, efficient and secure energy. The most developed and deployable of these measures—those affecting vehicles, fuels and power plants—are also the ones most important to launch as soon as possible. President Obama's Administration took the first step earlier this year in putting the nation's first limits on greenhouse gas emissions from passenger vehicles.[7]

Regulations under the CAA could complement a market-based program to reduce greenhouse gas emissions. Economic analyses of the California climate program show that an economy-wide cap-and-trade system or a similar market approach is needed to achieve our state's emission reduction targets, and to do so cost-effectively; traditional controls simply cannot adequately cover the full range and depth of car-

Author's note: The views expressed in this Article are the author's views and not those of the Board or of the state of California.

1. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10749, 10750 (Aug. 2010) (a longer version of this Article was originally published at 94 Cornell L. Rev. 1153 (2009)).
2. *Id.*
3. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
4. Lazarus, *supra* note 1.
5. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399 (1990); Clean Air Act Amendments of 1977, Pub. L. No. 95-95, §1, 91 Stat. 685 (1977).
6. *See* Lazarus, *supra* note 1, at 10749.
7. Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 49 C.F.R. §§531, 533, 537 (2010).

bon sources embedded in our economy.[8] Yet a market-based program alone also cannot achieve the volume of emission reductions needed, at least not in time to avoid potentially disastrous effects of climate change on public health and the economy. Smartly targeted controls can accelerate the shift to clean and efficient energy technologies.

The transportation sector is a plump target. It accounts for about one-third of U.S. emissions, with more than half of that from passenger vehicles.[9] A national low-carbon fuels standard for passenger vehicles, promulgated under §211 of the CAA, would accelerate deployment of advanced biofuels, plug-in hybrids and natural gas and hydrogen-powered fuel cell vehicles—all the while strengthening the nation's energy security and saving consumers fuel costs.[10] Already adopted in California, a low-carbon fuels measure would build off the federal Renewable Fuels Standard and eventually supersede it.[11]

At the risk of stating the obvious, the CAA is already working to reduce greenhouse gas emissions with remarkable cost-effectiveness from mobile and stationary sources. The current phasing in of more stringent federal standards for ozone and particulate matter yields, at no additional cost, real reductions in greenhouse gas emissions and, more importantly, reductions in premature deaths and illnesses, lost workdays and health care costs.[12]

Lazarus cites federal preemption of states' rights as one of the daunting political challenges of enacting federal climate legislation.[13] Yet a key lesson in the history of the CAA is that the enlistment of state and local regulators is critical to implementing and enforcing a program as complex as air quality. Under the Act, the United States Environmental Protection Agency (EPA) has set the National Ambient Air Quality Standards, while state and local agencies have developed strategies for implementation and enforcement of those standards. The EPA generally has approved any mix and match of localized, state or federal regulation as long as it works in a fair and efficient manner.[14]

The Waxman-Markey climate bill[15] includes numerous references to the required State Implementation Plans (SIPs).[16] California and other states with climate action plans think the final federal climate bill should include incentives for states to prepare a unified climate action plan.

Under a federal system with a cap and trading of federal allowances, no further EPA review of SIPs should be needed. But federal agencies (e.g., Department of Transportation, Department of Energy, Forest Service) should use these plans as guidance in awarding grants or managing resources in states that have adopted them.

Adapted to a federal climate law, this system of "cooperative federalism" would bring the same benefits: a national floor of minimum standards, flexibility in how to meet those standards and room for states to exceed them. Moreover, cooperative federalism would leverage resources at every level, cutting the enormous task of reducing greenhouse gas emissions nationwide into more manageable pieces, from utility regulation to local land use planning.

Land use controls are clearly a local prerogative. But that should not automatically exclude them from consideration in a federal climate change program, especially given the long-lived emissions embedded in our built environment. The federal government should reward communities with transportation plans that substantially reduce the number of vehicle miles travelled per household. These communities should receive technical and financial help for scenario-based modeling to ensure planning decisions are cost-effective and improve energy efficiency. There is no need to wait for federal climate legislation to act. These incentives and resources can and should be included in the federal Surface Transportation Act reauthorization bill.

The CAA is well suited for regulating the largest greenhouse gas emissions. It addresses both vehicles and fuels, allowing the transportation sector to be treated as a system. Some of the most cost-effective smog control measures and dramatic percentage reductions in smog-forming pollutants occurred early in the Act's history—as they should in attacking climate-altering pollution.

The federal vehicle emissions regulation announced April 1 shows how the CAA works cost-effectively in tapering greenhouse gas emissions. Starting with the 2012 model year, automakers must improve the average fleetwide efficiency of their cars and passenger trucks by roughly 5 percent each year until they reach the rough equivalent of 35.5 miles a gallon in 2016.[17] The change is estimated to save 1.8 billion barrels of oil in the vehicles' lifetime and cut greenhouse gas emissions by 960 million metric tons in the same period—the equivalent of removing 50 million cars from the road.[18] Because auto manufacturers can meet the rules using existing technologies, consumers will not be paying much more

8. California Air Resources Board, Updated Economic Analysis of California's Climate Change Scoping Plan, (Mar. 24, 2010), *available at* http://www.arb.ca.gov/cc/scopingplan/economics-sp/economics-sp.htm.
9. *See* U.S. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007 (Apr. 2009), *available at* http://www.epa.gov/climatechange/emissions/usinventoryreport09.html.
10. 42 U.S.C. §7545.
11. Cal. Code Regs, tit. 17. §§95480-90.
12. National Ambient Air Quality Standards for Ozone, Part II and V, 62 Fed. Reg.138 (July 18, 1997) (to be codified at 40 C.F.R. pt. 50).
13. Lazarus, *supra* note 1, at 10756 ("The extent to which federal law preempts state climate change law is likely to be one of the most significant policy disputes in the drafting of the federal legislation during the next four years").
14. Zygmunt J.B. Plater et al., Environmental Law & Policy 443 (2d ed. 2004).
15. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (passed the House June 26, 2009).
16. *See id.* §§203, 204.
17. *See* EPA-DOT Joint News Release, *DOT, EPA Set Aggressive National Standards for Fuel Economy and First Ever Greenhouse Gas Emission Levels for Passenger Cars and Light Trucks* (Apr. 1, 2010).
18. *Id.*

for the more efficient vehicles—perhaps spending an average of an extra $950 by 2016. And the fuel savings over the life of the vehicle will more than make up for those added costs, averaging $3,000 in net savings.[19]

The new emissions-reduction rule, modeled after a standard California pioneered, also shows that, beyond the CAA, Congress has another cache of climate change policy tools at hand: California's Global Warming Solution Act—Assembly Bill 32—and the California Air Resources Board's Scoping Plan for implementing the law.[20]

The federal government could begin by setting a national low-carbon fuel standard patterned after California's rule. A clear carbon limit, a long-term planning horizon, and use of an emissions trading market are harnessing the technical ingenuity and economic resources to achieve our state's required ten percent reduction in carbon intensity of fuels by 2020.[21] Engineers and entrepreneurs will decide how best to meet the fuel standard and the market will reward breakthrough ideas and technologies.

California has not waited for Congress to act. We will continue to adopt regulations and policies that accelerate our shift to a low-carbon economy that will add jobs and create savings in energy costs. We have developed some valuable experience that can help inform the federal debate, particularly our deployment of CAA strategies. Combating climate change demands broad, multifaceted, and interdependent approaches. We cannot rely solely on the current CAA. Congress also must set a firm, aggressive and achievable economy-wide cap on greenhouse gas emissions. In the meantime, the CAA offers powerful, common sense and cost-effective tools to start cutting those emissions from the largest sources—vehicles, fuels and power plants. The most expensive thing we can do is nothing.

19. *Id.*
20. California's Global Warming Solutions Act of 2006, Cal. Health & Safety Code §§38500-99.
21. California Air Resources Board, Initial Staff Report, Final Statement of Reasons and Approved Regulation, *available at* http://www.arb.ca.gov/regact/2009/lcfs09/lcfs09.htm.

Solving the Super Wicked Problem of Climate Change: How Restraining the Present Could Aid in Establishing an Emissions Cap and Designing Allowance Auctions

by Jeanette M. Soares

Jeanette Soares is a graduate of Dartmouth College and Georgetown University Law Center. She is currently a senior staff attorney with the Office of the General Counsel at the U.S. Government Accountability Office, where her work focuses on climate change and Indian issues.

Richard Lazarus' analysis of climate change as a "super wicked" problem and discussion of precommitment strategies as a solution offer innovative ideas that could strengthen a future cap and trade law "by increasing the law's ability to achieve its objectives over the long term" and "limiting the ability of future legislators and officials to undermine the statute's implementation."[1] Furthermore, policymakers should consider precommitment strategies for a cap and trade law because some of the design features discussed in the article could effectively address the thorny issues associated with the establishment of an emissions cap. In addition, Lazarus' approach could facilitate the resolution of key design issues for emission allowance auctions, some of which existing cap and trade programs have already faced. Specifically, a statutorily prescribed standard triggered by a subsequent executive branch agency finding could assist in establishing the emissions cap and the use of a modified stakeholder council could contribute to the design of emission allowance auctions.

I. Statutorily Prescribed Standard Triggered by Subsequent Agency Finding

Accurate information on current and historical greenhouse gas emissions is critical to establishing the emissions cap and ensuring that emission reductions relative to a baseline occur. When the European Union Emissions Trading Scheme (EU ETS) began, member states did not have historical emissions data for specific facilities and, in some cases, did not have national laws and regulations in place that required reporting of emissions.[2] Member states had to use aggregate level and voluntarily reported emissions data as well as projections of future emissions to establish their emission caps for Phase I of the EU ETS, which ran from 2005 to 2007.[3] As a result, the cap exceeded actual emissions in Phase I by more than 3%.[4]

While most experts agree that the United States would not face the same data limitations and challenges in establishing an emissions cap as the EU ETS member states did, the emissions cap can still be set too high.[5] For example, northeastern states participating in the Regional Greenhouse Gas Initiative (RGGI) used available historic emissions data from the electricity generating sector to establish the program's emissions cap but the economic downturn and other factors resulted in actual emissions that are much lower than the cap.[6] This overallocation of allowances could threaten the RGGI's environmental integrity because, unlike Phase I of

Author's note: This comment represents the personal opinion of the author and does not reflect the views of the U.S. Government Accountability Office.

1. Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10749, 10752 (Aug. 2010) (a longer version of this Article was originally published at 94 Cornell L. Rev. 1153 (2009)).
2. U.S. Gov't Accountability Office, International Climate Change Programs: Lessons Learned From the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism 15-17 GAO-09-151 [hereinafter GAO-09-151], *available at* http://www.gao.gov/new.items/d09151.pdf.
3. *Id.* Phase I is often referred to as a pilot phase.
4. *Id.* at 17.
5. *Id.* at 26-27. Lack of data will be less of a concern because of the mandatory greenhouse gas reporting rule required by Pub. L. No. 110-161, tit. II (2007). *See* Mandatory Reporting of Greenhouse Gases, 74 Fed. Reg. 56260 (Oct. 30, 2009).
6. Beth Daley, *Emissions Down, but Lasting Efforts May Suffer,* Boston Globe, Jan. 3, 2008, at 1A.

the EU ETS, the allowances can be banked and used for compliance in later periods.[7]

The problems with setting an emissions cap could be alleviated if the law creating the cap and trade program specified a standard or formula for the executive branch agency to use to tighten the cap in certain circumstances. For example, the law could specify that if the executive branch agency finds that the first year's cap exceeded actual emissions from covered entities by a certain amount, then it could tighten the cap by a corresponding amount in a subsequent year. Such an approach would allow changes to the cap to reflect decreased emissions and, as Lazarus notes, new scientific information about the extent of reductions necessary.[8] Under this approach, Congress could precommit to stringent standards but allow a politically isolated body to decide when the stringent standards need to be employed.[9]

Covered entities and investors in new technologies might argue that this approach deprives them of the regulatory certainty they need to conduct business. However, for the most part, the ETS experience and the renewable fuel standard's implementation in the United States demonstrate that this approach can work even if it creates some uncertainty. When the EU directive establishing the ETS was enacted in 2003, it tasked each member state with setting a cap in accordance with specified criteria and the EU Commission with ensuring the cap satisfied the criteria.[10] However, the Commission did not complete its review of member state emission caps until several months into the 2005-2007 compliance period.[11] Despite these delays, covered entities were able to operate as usual. The fuel industry in the United States faced similar uncertainty when the Energy Policy of Act of 2005 established a renewable fuel standard (RFS) that generally required gasoline and diesel sold in the United States to contain a certain amount of renewable fuels, with the amount required increasing annually.[12] The Energy Independence Security Act of 2007 (EISA) contained several amendments to the RFS, including changing the amount of renewable fuel required to be blended into gasoline annually.[13] Additionally, each year EPA sets a blending standard that represents the amount of renewable fuel each party with a compliance obligation must use for the subsequent calendar year.[14] Any uncertainties or problems caused by changes to the volume requirement and annual establishment of the blending standard appear to have been eclipsed by concerns about which renewable fuels are eligible.

II. Use of a Modified Stakeholder Council

Experienced officials with both EU ETS member states and the RGGI have suggested that federal policymakers establish goals for allowance auctions before selecting an auction design, and periodically review and revise the design to ensure it aligns with the articulated goals.[15] The latter will be especially important because current legislative proposals would establish unprecedented auctions with respect to the amount of allowances auctioned and the number of potential auction platforms.[16] If the law established clear goals for the auction and then delegated decisions regarding auction design to an executive branch agency, a stakeholder council could review the design and offer recommendations for revisions to the agency. Such a council could offer a breadth of perspective and "provide the oversight necessary" to ensure that the auction fulfills the statute's goals.[17] In addition, the stakeholder council could solidify the "powerful political constituency with a strong economic incentive favoring the legislation's preservation" created by auctioning allowances and dissuade covered entities from launching legal challenges.[18]

The need for periodic reviews and revisions is perhaps greater with a federal cap and trade program since the amount of allowances to be auctioned will dwarf any existing ones, and current legislative proposals authorize non-covered entities to auction allowances without subjecting them to the same legal or regulatory requirements as the auctions held by the executive branch agency implementing the cap and trade program.[19] Although the EU ETS directive allows member states to sell or auction up to 10% of their cap in Phase II, which runs from 2008 to 2012, none have chosen to auction that much.[20] The United Kingdom has auctioned the most allowances of any member state to date, approxi-

7. *See e.g.*. 6 N.Y. Comp. Code 242-6.5(a)(1). The EU ETS Directive allowed member states to decide whether to permit banking from the pilot phase to Phase II. The European Commission permitted banking of pilot phase allowances to Phase II if (1) they were unused because of abatement rather than overallocation, and (2) if banked allowances were subtracted from the member state's Phase II cap. Poland was the only member state to allow banking to Phase II. *See* Directive 2003/87/EC, art. 13(1); GAO-09-151, *supra* note 2, at 13.
8. Lazarus, *supra* note 1, at 10754-55.
9. *Id.*
10. Directive 2003/87/EC, art. 9, Annex III.
11. *See* Council Directive C226/02 on Allocation Plans Notified by Member States to the Commission for Trading Period 2005 to 2007, http://ec.europa.eu/environment/climat/emission/emission_plans.htm (last visited Mar. 29, 2010).
12. Pub. L. No. 109-58, §1501 (2005). Under the act, the RFS applies to transportation fuel sold or introduced into commerce in the 48 contiguous states. However, the Administrator of the Environmental Protection Agency (EPA) is authorized, upon a petition from Alaska or Hawaii, to allow the RFS to apply in that state. On June 22, 2007, Hawaii petitioned EPA to opt into the RFS, and the EPA Administrator approved that request. In addition, the act authorizes the EPA Administrator, in consultation with the Secretaries of Agriculture and Energy, to waive the RFS amounts established in the act, by petition or on the EPA Administrator's own motion, if meeting the required level would severely harm the economy or environment of a state, a region, or the United States, or there is an inadequate domestic supply.
13. Pub. L. No. 110-140, §201 (2007).
14. 42 U.S.C. §7545(o)(3)(B); Renewable Fuel Standard Program, 72 Fed. Reg. 23900, 23903 (May 1, 2007). The yearly blending standard is calculated as a percentage, by dividing the amount of renewable fuel that the RFS requires to be used in a given year by the amount of gasoline expected to be used during that year, including certain adjustments and exemptions specified by the EISA. 73 Fed. Reg. 70643, 70643 (Nov. 21, 2008).
15. By periodically, these experienced officials mean at pre-determined times and not annually or after every compliance period. Frequent revisions would require participants to constantly learn and adjust to the new design.
16. *See* H.R. 2454, 111th Cong. (2009); S. 1733, 111th Cong. (2009). Both bills require the EPA Administrator to allocate emission allowances to covered and non-covered entities, such as states, local distribution companies, and eligible research consortia, in addition to auctioning allowances for specified purposes, such as the market stability reserve and energy efficiency initiatives.
17. Lazarus, *supra* note 1, at 10755.
18. *Id.* at 10752.
19. H.R. 2454 at §321; S. 1733 at §111.
20. 2003 O.J. (L 275) 32, art. 10.

mately 34 million.[21] The RGGI auctioned approximately 87% of the emission allowances it issued for 2009, but that only amounted to about 163 million allowances.[22] In contrast, one legislative proposal has a cap of over four billion allowances and would initially auction over one billion in the program's first year.[23]

The existence of multiple auction platforms, as contemplated in current legislative proposals, also warrants periodic review by a stakeholder council based on the EU ETS and the RGGI auction experience. Under the current legislative proposals, entities without a compliance obligation under the cap and trade program would receive funds from the proceeds of the federal government's auctions. Others would receive allowances directly from the federal government, which they could auction, sell, or retire.[24] While the non-covered entities could have their allowances sold on consignment by EPA, if they choose to hold their own auctions, the law and any implementing regulations would not impose restrictions on them.[25] This approach is analogous to the EU ETS' multiple auctions conducted by member states, which they are moving away from and toward a centralized auction like the RGGI.

The EU ETS and the RGGI experiences are perhaps a cautionary tale for any new federal cap and trade program and highlight the need for periodic reviews of any auction design. Tasking a stakeholder council with the review process makes sense because they are the ones participating in the auctions and carbon market. Their perspective and recommendations to the executive branch agency implementing the program would provide the agency with valuable information. Moreover, the stakeholder council would give a voice in the implementation process to "long-term interests of future generations," the political constituency that receives the auction revenues, and covered entities.[26] Participation in a stakeholder council could reinforce the new political constituency's support of the cap and trade program and prevent covered entities from taking their concerns and grievances to court because they would be part of the implementation process.

These are just two of the climate change legislation design features that Lazarus' article presents that merit further consideration. Both could be utilized to address potential challenges in a federal cap and trade program while also ensuring that "future generations would not be forgotten during the decades required for the new law's ambitious objective to be achieved."[27]

21. UK government auction of EU allowances in the UK for Phase II of the EU Emissions Trading System, http://www.dmo.gov.uk/index.aspx?page=ETS/AuctionInfo (last visited Mar. 29, 2010).
22. *See* Environment Northeast's RGGI Auction Tracker, http://www.env-ne.org/resources/open/p/id/715 (last visited Mar. 29, 2010).
23. H.R. 2454 at §321; H. Rep. No. 111-137, at 362 (2009).
24. H.R. 2454; S. 1733, at §111.
25. *Id.*
26. Lazarus, *supra* note 1, at 10755.
27. *Id.* at 10756.

A Reply

by Richard J. Lazarus*

I am grateful to all three commenters for taking the time to read and comment on the excerpt in this publication of my article, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*.[1] I am also grateful to the organizers of the Environmental Law and Policy Annual Review Conference, co-sponsored by the Environmental Law Institute and Vanderbilt University School of Law, for providing me with this additional opportunity to reply to the comments.

My reply is directed exclusively to one of the three comments, no doubt because it is the most provocative. The comment by Keith Cole, Director of Legislative and Regulatory Affairs at General Motors, certainly should win the prize for best title: *Geniuses Versus Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand."* In describing my article's recommendations, Cole's comment claims that "like zombies from a bad movie, these proposals would stalk future generations, replacing their wisdom with the decisions of the (potentially long-dead) legislators of today."[2] I applaud a good turn of phrase—like Cole's here—and was a big fan of the classic 1960s horror flick, *Night of the Living Dead*,[3] which Cole's comment strongly evokes. But I think this critique is fundamentally misguided.

1. Cole's comment raises a false question. The question is not *whether* present generations will stalk the future; the question is *how*. If we do not enact global climate change legislation capable of addressing the problem in a meaningful and sustained way over time, we risk leaving future generations with an atmosphere so loaded with greenhouse gases that there is little that they can do about it. If the current scientific consensus about the impacts of those gases is true, those future generations will suffer potentially devastating consequences. Now, that's stalking! And, irreversible stalking.

On the other hand, any precommitment strategies that Congress decides to use now to reduce the chances of that happening will not be similarly irreversible. If those strategies, described in my article, turn out to be a huge mistake, Congress can change the law. The purpose of precommitment strategies is to make it harder to change the law, but never impossible to do. If new information is developed that shows that greenhouse gases are actually fundamentally good for humankind and the natural environment and not, as most scientists currently suggest, extremely harmful, I am not the least bit worried that there will be insufficient pressure from powerful political constituencies to change the law.

Nor is there anything remotely radical or fundamentally antidemocratic about the idea of making it harder for powerful political constituencies to change the law. Precommitment strategies have a long, established pedigree in U.S. law.[4] The Constitution is full of them. For instance, on the one hand, we do not allow ourselves to elect the same person to be President more than twice. On the other hand, we do not allow ourselves to remove the President unless he or she is impeached by the House of Representatives and convicted by the Senate, based on a supermajority vote. The Bill of Rights is one big set of precommitment strategies designed to make it hard to enact certain kinds of laws. The Framers of the Constitution and the Drafters of the Bill of Rights understood how the collision of long and short-term interests can, absent certain safeguards, create the risk of poor and destructive lawmaking.[5]

Congress and the President have likewise long understood this risk and promoted laws and lawmaking processes, based on precommitment strategies, to reduce that risk. That is why, at the turn of the 20th century, President Woodrow Wilson and William Jennings Bryan came up with the remarkable lawmaking innovation called the Federal Reserve System.[6] They understood the limits on Congress' ability to address certain complexities of a then-emerging national economy. President Wilson, not coincidentally himself a scholar of political science, appreciated the need to insulate some kinds of lawmaking processes from the hurly burly of daily political life. These are also lessons that Congress has not forgotten in recent years. One sees analogous uses of precommitment strategies in the crafting of the federal military base closures and health information privacy laws.[7] In each, legislators understood why the short- and long-term dimensions of a particular problem defied easy lawmaking

** Professor Lazarus requested the opportunity to submit a reply to the responses to his article*

1. 94 Cornell L. Rev. 1153 (2009). *See* Keith Cole, *Geniuses Versus Zombies: To Address Climate for the Long Haul, Empower the Innovators, but Don't Disinter the "Dead Hand,"* 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10757 (Aug. 2010); Mary D. Nichols, *Comment on* Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10760 (Aug. 2010); Jeanette M. Soares, *Solving the Super Wicked Problem of Climate Change: How Restraining the Present Could Aid in Establishing an Emissions Cap and Designing Allowance Auctions*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10763 (Aug. 2010).
2. Cole, *supra* note 1, at 10758.
3. *See* Night of the Living Dead (Karl Hardman & Russell Streiner 1968).
4. Lazarus, *supra* note 1, at 1195-1200.
5. *Id.* at 1199.
6. *Id.* at 1203-04.
7. *Id.* at 1201-02.

and so they created a different kind of lawmaking structure to break the logjam.

My only further point is that it is going to require similarly creative lawmaking now to address global climate change and that precommitment strategies should play a significant role in such lawmaking. Global climate change presents an extraordinarily difficult lawmaking challenge because of its enormous spatial and temporal horizons. But nothing in my article suggests what those precise precommitment strategies should be other than that they should be asymmetric in character in order to promote the possibility that the voices of the future will have a fighting chance.[8]

2. A further claim in Cole's submission is that my article rests on an "undercurrent of technological pessimism . . . [and] [t]he possibility that we can meet the climate change with the American genius for ingenuity and invention does not appear to be considered by the article."[9] Not so. My article is premised on technological optimism. And I fully agree with Cole that it will require enormous technological innovation to meet climate change goals. But, I am also well aware of what will be necessary to make that innovation occur: a stable regime of climate change law over time.

If entrepreneurs in the private marketplace believe that climate change law is unstable and susceptible to constant change over time—in response to short-term economic interests seeking to modify the law's requirements in their favor—market prices will fail to send the necessary signals for long-term investment by entrepreneurs and those interested in technological innovation. That is precisely why asymmetric precommitment strategies are necessary: to stabilize the market and allow for the genius of technological innovation. Cole's own General Motors well illustrates the critical role that law plays in sending the necessary market signals. General Motors waited until legal requirements for better fuel economy became clear, prior to (belatedly) promoting greater fuel efficiency in its production line.[10]

3. Cole's final comment has more force but still remains wide of mark. He contends that "[t]he proposed menu of 'asymmetric precommitment strategies' could materially affect the chances of the bill being enacted. And without the 'legislative moment,' the rest is moot."[11] This is a legitimate concern. All too often the price of seeking to achieve the best possible law—and refusing to compromise—is no law at all. And I agree with Cole's basic point that it would be a mistake for those serious about the need for meaningful climate change law now to fall into that trap.

Where I nonetheless depart ways from Cole is his too easy assumption that asymmetric precommitment strategies should therefore not be pursued in existing legislative proposals. Of course, if we already knew that all one can pass is legislation without those strategies, and nothing more, then their promotion might well be a mistake. But we do not know that. We do not yet know how strong and effective climate change legislation can be and still pass Congress. And, in what is still an early moment in the legislative process, we should discuss what that legislation should include rather than assume we already know the answer.

If, moreover, we do not now seek to ensure that the legislation that is enacted is sustainable over time, it is unlikely to matter much what Congress nominally passes. The new legislation will become largely symbolic legislation. And its passage will, as a practical matter, sap the force of those seeking climate legislation with promises that, absent the necessary precommitment strategies, quickly become illusory. That's the kind of mootness that worries me the most.

8. *Id.* at 1193-95.
9. Cole, *supra* note 1, at 10759.
10. *See* John M. Broder, *Limits Set on Pollution From Autos*, N.Y. Times, Apr. 2, 2010, at B1; Bill Vlasic & Nick Bunkley, *G.M. Puts Volts Mileage in Triple Digits,* N.Y. Times, Aug. 12, 2009, at B5; *see also* General Motors, Fuel Economy & Alternative Fuels, *available at* http://www.gm.com/experience/fuel_economy/ (last visited May 2, 2010).
11. Cole, *supra* note 1, at 10758.

ARTICLE

Kyoto at the Local Level: Federalism and Translocal Organizations of Government Actors (TOGAS)

by Judith Resnik, Joshua Civin, and Joseph Frueh

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I. Changing the Contours of American Law and of Federalism

During the last decades, domestic policies in the United States on global warming have been shaped through iterative interactions among transnational lawmakers, the national government, and hundreds of subnational entities. Exemplary are the activities of the U.S. Conference of Mayors (USCM), which crafted a Climate Protection Agreement endorsed by some 800 localities. As a result, although the United States has not ratified the Kyoto Protocol on climate change, localities throughout the country have affiliated with the principles that Kyoto embodies.

This essay, a much-condensed version of a longer article and a book chapter,[1] places translocal action on climate change in the contexts of two more general phenomena—subnational importation of "foreign" law and the impact of translocal organizations on American federalism. Entities such as USCM resemble in some respects nongovernmental organizations (NGOs) but gain their political capital from the fact that their members are government officials or employees such as mayors, attorneys general, governors, or legislators. To distinguish such entities from governmental bodies and private sector groups, we offer the term "translocal organizations of government actors," with the acronym "TOGAs."

Although a small body of social science literature has begun to address TOGAs,[2] much of what TOGAs do is interesting and underexplored, both empirically and normatively. TOGAs are deeply federalist, in the sense that they mirror the layers of the federal system. Yet, by linking actors across jurisdictions, TOGAs also prompt reconsideration of some of the standard precepts of federalism, which are focused on state-to-state or state-federal interaction more than on cooperative interactions that yield efforts such as the Mayors Climate Protection Agreement. Further, because many TOGAs are populated by elected leaders, their importation of non-

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1. Judith Resnik, Joshua Civin & Joseph Frueh, *Ratifying Kyoto at the Local Level: Sovereigntism, Federalism, and Translocal Organizations of Government Actors (TOGAs)*, 50 Ariz. L. Rev. 709 (2008). That article is also the basis for the chapter, *Changing the Climate: The Role of Translocal Organizations of Government Actors (TOGAs) in American Federalism(s)*, *in* a book from the University of Arizona Press (forthcoming in 2010).

2. *See, e.g.*, David S. Arnold & Jeremy F. Plant, Public Official Associations and State and Local Government: A Bridge Across One Hundred Years (1994); Anne Marie Cammisa, Governments as Interest Groups: Intergovernmental Lobbying and the Federal System (1995); Donald H. Haider, When Governments Come to Washington: Governors, Mayors, and Intergovernmental Lobbying (1974).

U.S. law undercuts criticism that reliance on "foreign" law is necessarily countermajoritarian. Moreover, the domestication of Kyoto's precepts underscores the limits of essentialist claims that insist on the exclusivity of the national government's authority over "foreign" affairs. Below, we sketch the impact of transjurisdictional work by TOGAs, the extent to which that work is in tension with some of the distress about trans-border exchanges, the relationship of TOGAs' work to the doctrine and practices of federalism, and the possible roles for law to play in enabling or regulating TOGAs.

II. Domesticating the "Foreign"

In 1997, meetings in Kyoto, Japan yielded an agreement to address global warming that posited the nation-state as central to international exchanges. The Kyoto Protocol created a framework of timetables for nations to reduce greenhouse gas emissions.[3] In 1998, President Clinton signed the Protocol but, within the United States, opposition to the Protocol mounted. For instance, the Committee to Preserve American Security and Sovereignty (COMPASS) raised objections to ratification through a report entitled *Treaties, National Sovereignty, and Executive Power: A Report on the Kyoto Protocol*.[4]

The group's acronym "COMPASS" insisted on the relevance of geography, and its argument relied on jurisdictional claims. COMPASS warned that "[t]he Protocol may convert decisions usually classified as 'domestic' for purposes of U.S. law and politics into 'foreign,' and thus move substantial power from the Congress, from state and local governments, and from private entities into the federal Executive Branch," which was presumed by COMPASS to hold power over "foreign affairs."[5]

The COMPASS report is one example of *sovereigntism*, a posture stressing the importance of a nation's right to define its own lawmaking. The COMPASS report's form of sovereigntism is *exclusivist*. It espouses a view that the legal regime in the United States ought to be made from within and protected from foreign influences. However, sovereigntism need not take an exclusivist form. South Africa's Constitution, for example, marks the identity of that nation through insistence on its role in the "family of nations," and directs that, when interpreting that nation's bill of rights, jurists "must consider" international law and may consider comparative provisions.[6] South Africa's assertion of sovereignty is thus *inclusivist*, inviting cross-border dialogue.

In the United States, claims in support of exclusivist sovereigntism, such as the COMPASS report, are often grounded in arguments about the structure of U.S. federalism. They argue that, under the U.S. Constitution, the regulation of particular subject-matters (in this context, climate policy) belongs to certain levels of government (in this instance, "domestic" decisionmaking by localities and Congress, rather than shifting the authority through the category of "foreign" affairs to the federal Executive Branch).

But how can one tell what problems are "domestic" or "foreign," and whether characterizing a problem as "domestic" necessarily precludes it from also being described as "foreign"? These questions have been posed in many legal contexts and sometimes end up in litigation. Examples include lawsuits about whether Massachusetts has the power to decide not to use its taxpayers' dollars to buy goods made with forced labor in Burma,[7] and whether legislatures or executive officials in Illinois who are appalled at genocide in Darfur can divest their state's assets from Sudan.[8] Like questions of climate policy, these examples illustrate that problems are often both "domestic" *and* "foreign." Allocating a citizenry's tax dollars to control a jurisdiction's own expenditures is a local political decision that can (depending on where dollars are spent) have national and global ramifications, just as how one consumes oil affects both domestic and foreign interactions.

At stake in the effort to categorize something as either "domestic" or "foreign" are questions of power and process. The COMPASS report reflected concerns about transnational influences on domestic law and about international lawmaking in general that are often bundled as evidence of a "democratic deficit."[9] The premise is that international lawmaking undercuts both the majoritarian procedures and the separation of powers embedded in the U.S. Constitution. Exclusivist sovereigntism is thus equated with constitutionalism and popular will.

To assess the COMPASS report's critique of the Kyoto Protocol, consider the events that followed on the "domestic" front. A year after the 2000 election, President George W. Bush withdrew American support from the Kyoto Protocol. Some of his arguments echoed those made by COMPASS.[10] One could read the sequence of the election, in which control of the White House switched hands from the Democratic to the Republican Party, followed by the new President distancing the nation from the Protocol, as a majoritarian outcome. However, discerning majoritarian views on climate change is complicated by the fact that the Democratic candidate, Al

3. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22, *available at* http://unfccc.int/essential_background/kyoto_protocol/items/1678.php.
4. Comm. to Pres. Am. Sec. & Sovereignty, Treaties, National Sovereignty, and Executive Power: A Report on the Kyoto Protocol (1998), *available at* http://jamesvdelong.com/articles/environmental/kyoto.html.
5. *Id.*
6. S. Afr. Const. 1996, pmbl. & ch. 2, §39.
7. Crosby v. Nat'l Foreign Trade Council, 530 U.S. 363 (2000).
8. Nat'l Foreign Trade Council, Inc. v. Giannoulias, 523 F. Supp. 2d 731 (N.D. Ill. 2007).
9. Comm. to Preserve Am. Sec. & Sovereignty, *supra* note 4.
10. Remarks on Global Climate Change, 1 Pub. Papers 634, 634 (June 11, 2001).

Gore, who was identified with addressing global warming, won the popular vote.

When one turns from the national to the subnational level, the link between the COMPASS critique and majoritarianism further weakens. Localities within the United States affiliated with Kyoto's precepts by shaping a de facto transnational alliance through translocal action. Soon after President Bush withdrew support for the Protocol, cities as different as Seattle and Salt Lake City enacted ordinances aimed at conforming to the Protocol's targets for controlling local emissions of greenhouse gases. In March 2005, a group of nine mayors agreed to a Climate Protection Agreement and then garnered the official approval of USCM, which endorsed a modified version of the Agreement in June 2005. The Agreement aims for mayors to "meet or exceed the Kyoto Protocol targets . . . in [their] own operations and communities" through initiatives such as retrofitting city facilities, promoting mass transit, and maintaining healthy urban forests.[11] In addition, the mayors called upon federal and state governments to comply with Kyoto targets and urged Congress to pass bipartisan legislation to create an emissions trading system and "clear . . . emissions limits" for greenhouse gases.[12]

By the spring of 2008, more than 800 mayors, representing towns and cities whose combined populations numbered almost 80 million people, endorsed the Climate Protection Agreement.[13] The COMPASS report leveled objections to transnational activity by arguing that it undercut domestic practices in the United States, but the Bush Administration's reluctance to participate in the Protocol at a national level prompted a sequence of subnational democratic debates about energy policy choices. While the sovereigntist opponents of the Protocol erred by claiming that transnational processes inherently undercut majoritarian processes, they were right to point out that lawmaking from abroad has domestic effects. The Protocol did influence mayors and localities, who were persuaded by the mix of their own problems and the solutions that had been proffered outside the United States, to generate new policies. And that impact is not unique. One can find a repeating pattern of transnational influence in which localities function as ports of entry for non-U.S. law and policy.[14]

Our larger point is that these "local," "federal," and "international" "interests" are not fixed but instead emerge based on various interdependencies. The phenomenon of "law's migration" has both a long history in the United States and many contemporary iterations[15] through various channels, both judicial and majoritarian. Ideas, norms, and practices do not stop at the lines that people draw across land. In the federal system, subnational units provide an array of entry ports. Over time, the origins of rules blur. Certain legal precepts are now seen as foundational to the United States, but one should not label them "made in the U.S.A." without an awareness that, like other "American" products, some parts and designs are produced abroad.

III. The Variety Within the Federalism(s) of the United States

A. *New Networks: From NGOs and GOs to TOGAs*

A significant body of scholarly literature addresses social movements through a focus on "networks" of activists bringing parallel and coordinated initiatives across a spectrum of issues. One could categorize organizations such as USCM as NGOs. Such nomenclature captures the idea that actors outside of government work (often transnationally) on issues because their members share common values and a discourse through regular exchanges of information. But the term "NGO" generally refers to what its initials stand for—a "*nongovernmental* organization"—a group of persons in the private sector working in concert and playing a significant role in the public sphere in order to garner support for influencing government policies.

In contrast, the network that spawned the Mayors Climate Protection Agreement was comprised of many individuals who knew each other because, as elected officials of cities with populations of 30,000 or more, they were eligible for membership in USCM. That organization is one of several defined and populated by people holding positions in local or state government. USCM is *private* in the sense that it is not a part of local, state, or the federal governments. But the political capital of USCM comes from the fact that its members are democratically elected, *public*-sector officials.

Yet USCM is not a "GO"—a governmental organization. Rather, it is a voluntary association that is not bound by, nor does it bind, the government units of which its members are the mayors. USCM and its counterparts, such as the National Governors' Association (NGA), are also both public and private in terms of finances; their resources are generally a mix of grants, corporate sponsorships, and taxpayer funds.

These organizations could be captured by a clunky shorthand that, if fully descriptive (such as Translocal Private Organizations of Government Officials and Actors, or TPOGOA), does not abbreviate well. We choose instead the phrase Translocal Organizations of Government Actors and therefore the acronym TOGA to hearken back to the ancient Roman garb that denoted dignity and marked citizenship.[16]

In the article on which this essay is based, we detail the history and practices of eleven prominent TOGAs to illustrate the range of activities and distinctive (as well as overlap-

11. The U.S. Mayors Climate Protection Agreement, *available at* http://www.usmayors.org/climateprotection/documents/mcpAgreement.pdf.
12. *Id.*
13. Lina Garcia, *800 Mayors Join Mayors Climate Protection Agreement*, U.S. Mayor Newspaper, Mar. 10, 2008, *available at* http://usmayors.org/ uscm/us_mayor_newspaper/documents/03_10_08/pg10_800_mayors.asp.
14. Judith Resnik, *The Internationalism of American Federalism: Missouri and Holland*, 73 Mo. L. Rev. 1105 (2009).
15. Judith Resnik, *Law's Migration: American Exceptionalism, Silent Dialogues, and Federalism's Multiple Ports of Entry*, 115 Yale L.J. 1564 (2006).
16. *See* Caroline Vout, *The Myth of the Toga: Understanding the History of Roman Dress*, 43 Greece & Rome 204, 214-16 (1996).

ping) agendas.[17] Below, we reproduce a chart that provides a snapshot of these TOGAs, with founding dates for each.

TOGA	Founding Year
National Conference of Commissioners on Uniform State Laws	1892
National Association of Attorneys General	1907
National Governors Association	1908
International City/County Management Association	1914
Council of State Governments	1933
U.S. Conference of Mayors	1933
National Association of Counties	1935
Conference of Chief Justices	1949
National League of Cities	1964
National Conference of State Legislatures	1975
National Association of Towns and Townships	1976

B. Criss-Crossing the Federalism Grid

In discussions of federalism, states are typically conceived as independent actors placed on an "equal footing" by national law.[18] The environmental federalism literature is especially attentive to states as competitors; the metaphor is of races—to the bottom or the top—in which states tailor policies to attract industry and investment to their respective jurisdictions.[19] Less in view are the many joint actions undertaken by states. At the formal level of the Constitution's Compact Clause, some cross-jurisdictional state activities obtain congressional approval through statutes approving specific compacts.[20] More common than compacts are multistate executive orders, informal administrative agreements, or other joint ventures among similarly situated subnational actors.[21]

The term "horizontal federalism"—state-to-state interaction—has recently gathered some attention within the legal academy.[22] Scholars and policymakers have used examples ranging from marriage laws to the treatment of criminal offenders after incarceration as they consider how regimes in one state must or can be used by another state when people or goods travel,[23] and whether courts or Congress should impose national resolutions of such questions. Concerns about "horizontal aggrandizement"—the possibility that some states will take advantage of their superior resources to obtain national legislation beneficial to their interests at the expense of other states—have been elaborated in support of arguments for judicial oversight of congressional decisions.[24]

Turning to the "vertical dimensions," one finds discussions of "cooperative federalism"—used to denote collaboration linking federal actors with either state or local actors, often in the context of city- or state-based implementation of national programs.[25] But the legal federalism literature does not pay much attention to federalist practices that cross both vertical and horizontal dimensions at the same time, which (at the conference from which this article emerged) Daniel Farber suggested we call "diagonal federalism"[26] and which we explore below as we examine the forms and functions of TOGAs. Translocal action requires, however, a reappraisal of the conception of states in the singular and prompts questions about what import this reconceptionalization could have for political theory and legal doctrine.

C. Democracy, Federalist Virtues, and TOGAs

TOGAs could be viewed as improving deliberative democracy because they bring in not only more voices but a particularly interesting set of voices—those of officials structurally embedded in the problems of states and localities and cutting across both. Given the needs of TOGAs' constituents and the obligations of many of their members to administer state and local programs, these organizations may be especially attuned to practical concerns about developing and implementing innovative solutions.

But TOGAs ought to give federalism enthusiasts some pause. Federalism is argued to be a desirable political structure because it locates power at multiple levels and in theory produces variety and policy competition. Yet TOGAs could generate uniformity, as exemplified by hundreds of mayors signing on to a shared approach to climate change. On the other hand, for federalism skeptics, TOGAs may well provide evidence, from the "bottom up," that diversity is less useful in certain areas.[27]

This rapid overview serves to underscore that TOGAs' agendas are themselves a product of interactions, rather than a set of interests produced at any one level and then promoted elsewhere. TOGAs represent the ongoing exchanges between local needs and state policies or between subnational needs and federal policies. Indeed, the federal government has been, on occasion, an important source of funding for some TOGAs and, in a few instances, has helped to create

17. Resnik, Civin & Frueh, *Ratifying Kyoto at the Local Level: Sovereigntism, Federalism, and Translocal Organizations of Government Actors (TOGAs)*, *supra* note 1, at 740-58.
18. Coyle v. Smith, 221 U.S. 559, 567 (1911).
19. *See, e.g.*, Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "To the Bottom"?*, 48 Hastings L.J. 271, 274 (1997); Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. Rev. 1210, 1210 (1992).
20. U.S. Const. art. I, §10, cl. 3.
21. Ann O'M. Bowman, *Horizontal Federalism: Exploring Interstate Interactions*, 14 J. Pub. Admin. Res. & Theory 535, 544 (2004).
22. *See, e.g.*, Allan Erbsen, *Horizontal Federalism*, 93 Minn. L. Rev. 493 (2008); Gillian E. Metzger, *Congress, Article IV, and Interstate Relations*, 120 Harv. L. Rev. 1468 (2007).
23. *See, e.g.*, Wayne A. Logan, *Horizontal Federalism in an Age of Criminal Justice Interconnectedness*, 154 U. Pa. L. Rev. 257 (2005).
24. *See* Lynn A. Baker, *Putting the Safeguards Back Into the Political Safeguards of Federalism*, 46 Vill. L. Rev. 951, 955-56, 966-67 (2001).
25. *See, e.g.*, Nestor M. Davidson, *Cooperative Localism: Federal-Local Collaboration in an Era of State Sovereignty*, 93 Va. L. Rev. 959 (2007); Richard C. Schragger, *Can Strong Mayors Empower Weak Cities? On the Power of Local Executives in a Federal System*, 115 Yale L.J. 2542 (2006).
26. Daniel Farber, Remarks at the William H. Rehnquist Center Conference: *Federalism and Climate Change: The Role of the States in a Future Federal Regime (Feb. 11, 2008), available at* http://www.law.arizona.edu/FrontPage/Events/Gallery/ fedconference/index.htm.
27. *See generally* Edward L. Rubin & Malcolm Feeley, *Federalism: Some Notes on a National Neurosis*, 41 UCLA L. Rev. 903 (1994).

these translocal organizations in efforts to gain support for national policies and to diffuse criticism. Further, TOGAs are also dynamic. Many have reconfigured over time or merged with other entities. Several have charters that result in sharing members with other TOGAs, such that a particular jurisdiction or government actor may be a member of more than one TOGA.

Identifying a TOGA by its jurisdictional level does not consistently predict whether that TOGA adopts views that can be styled "progressive" or "conservative." Issues such as environmentalism may not fit easily into those boxes; once seen as coming at the price of economic growth, efforts to be "green" are now promoted as the key to expanding development opportunities.[28] And, given that environmental regulation could affect differently situated subnational regimes in different ways, some subnational organizations may adopt stances with which others disagree.

An example of this divergence comes from controversy over the authority of the federal Environmental Protection Agency (EPA) to regulate greenhouse gas emissions by motor vehicles, an issue litigated in the Supreme Court in 2007.[29] In *Massachusetts v. EPA*, subnational participants took opposing positions. Massachusetts, the first named plaintiff, was joined by eleven other states, three cities, and one U.S. territory. Ten other states intervened in support of the federal government. In addition, amicus or "friend-of-the-court" briefs were filed in support of Massachusetts by USCM, the National Association of Counties, and four cities, including Seattle, which introduced itself in its "statement of interest" as a pioneer in the Kyoto Protocol activism that helped to launch the Mayors Climate Protection Agreement.[30]

Massachusetts v. EPA is not idiosyncratic. In virtually all of the Supreme Court's major recent federalism cases, subnational actors representing their political units or through TOGAs have filed briefs on both sides—arguing that a particular provision either exceeded or fell within congressional powers under the Constitution. Splits exist not only across TOGAs but also within them, as members debate whether to take a position and if so, what it should be.[31] In the national legislative arena, different levels of subnational government have frequently disagreed about policy initiatives and vied with one another for federal funds and targeted roles in statutes.[32]

In short, while counties, cities, states, and TOGAs bespeak their commitment to the "interests" of the jurisdictional levels of which they are a part, promoting something called state or municipal "interests" does not decide the question of what those interests are. Further, even if a TOGA has settled on a set of "interests," its posture can change depending on its leadership, membership, and particular problems at a given time.

IV. Law's Options

Even if TOGAs are historically rooted and majoritarian in some of their workings, we need to consider whether their translocalism is a phenomenon that ought to be the subject of lawmaking and if so, what kind of regulatory interventions could be appropriately undertaken by courts or legislatures in the federal or state systems. Our responses require prefatory caveats. Others may well probe whether the substantive policies that various TOGAs develop or promote are usefully designed to achieve their goals. For example, is the Mayors Climate Protection Agreement responsive to the problem of global warming? That type of metric, however, is not our focus, although the wisdom of TOGAs' interventions constitutes one factor relevant to whether they should be accorded special legal status. Further, our analyses are necessarily limited by the lack of a richer empirical record that is needed to inform one's enthusiasm for using law to inscribe or circumscribe TOGAs' activities. Therefore, while we provide examples of how law can take TOGAs into account, these are preliminary interventions rather than universal prescriptions.

A. Enabling TOGAs Through Doctrine and Statutes

1. Standing

TOGAs should have access to courts to enforce federal statutory rights. This proposition could be seen as novel, but it finds roots in two Supreme Court decisions. One already mentioned is *Massachusetts v. EPA*. The majority looked to its own sovereign immunity jurisprudence, which insulated states as defendants, to shape a parallel proposition that posited states to be specially situated plaintiffs. The Court did not reach the argument of the amicus brief of USCM that cities ought to be empowered to serve as plaintiffs as well.[33]

The second case is *Sierra Club v. Morton*.[34] At issue was whether the Secretary of the Interior had violated federal statutes by issuing permits for a hotel complex in the Sierra Madre Mountains. The Court declined to permit public interest groups to bring federal lawsuits on a theory that they served the function of "private attorneys general."[35] Rather, the majority insisted that the Sierra Club had to show that the organization or its members had experienced an injury by alleging that its members had hiked in the woods or otherwise used the area in dispute.

In contrast to the Sierra Club, TOGAs present another option. They sit between governments and NGOs. In environmental litigation and elsewhere, law ought to accord

28. *See, e.g.*, Keith Schneider, *Salt Lake City Is Finding a Payoff in Conservation*, N.Y. Times, Nov. 7, 2007, at H10.
29. Massachusetts v. EPA, 549 U.S. 497, 531-35, 37 ELR 20075 (2007).
30. Brief of Amici Curiae U.S. Conference of Mayors et al., as Amici Curiae in Support of Petitioners at 3, Massachusetts v. EPA, 549 U.S. 497 (2007) (No. 05-1120), 2006 WL 2569574.
31. *See, e.g.*, Ed Somers, *Conference Adopts Resolution on Iraq War*, U.S. Mayor Newspaper, July 16, 2007, *available at* http://usmayors.org/uscm/us_mayor_newspaper/documents/07_16_07/pg38_iraq_war.asp.
32. Arnold & Plant, *supra* note 2, at 5, 77-83, 122-23.
33. Brief of Amici Curiae U.S. Conference of Mayors et al., as Amici Curiae in Support of Petitioners, Massachusetts v. EPA, 549 U.S. 497 (2007) (No. 05-1120), 2006 WL 2569574.
34. 405 U.S. 727, 741, 2 ELR 20192 (1972).
35. *Id.* at 741, 737-41.

them special status as parties, at least as to the enforcement of rights against the federal government. They should be recognized, through case law or statute, as appropriate plaintiffs or intervenors as of right, akin to the status accorded the U.S. Attorney General, who is authorized to intervene when federal statutes are challenged.[36]

Opponents of proposals to enable litigation often raise concerns about how to ensure appropriate enforcement and deter frivolous claims. Yet, because TOGAs have intra-member obligations of transparency and limited resources, they have to be selective about when to participate in litigation. Moreover, as illustrated by TOGAs' amici filings, they can inform judges while also making plain that subnational institutions do not all agree on how to interpret the precepts of federalism in terms of which sectors of government can pursue certain activities.

2. Deference

Federalism jurisprudence should take TOGAs into account in another respect. Here we build on an idea put forth by Herbert Wechsler. He argued that because states were represented in Congress, the judiciary should be reluctant to step in at the behest of state and local actors to review congressional statutes affecting state powers.[37] Wechsler's article was prompted by cases in which states went to the federal courts to obtain judicial protection from congressional legislation. Today, business organizations, often supported by the federal government, go to federal court to get protection from states and localities that have enacted emissions controls, banned purchases from Burma, or mandated divestment from Sudan.[38] The claim is that local or state regulation is preempted.

We join others[39] in arguing that federal preemption is often neither required nor appropriate. In our view, as a matter of constitutional law, many local and state actions with national, foreign, and transnational effects are permissible—and unavoidable. Reformatting Wechsler's idea to entail "the political safeguards of translocalism," we think the growing presumption in favor of federal preemption should be flipped. Absent a clear statement from Congress directing preemption, the judiciary ought to be reluctant to preempt local majoritarian activities undertaken by TOGAs—such as the Mayors Climate Protection Agreement. Indeed, local actions could have a stronger claim to judicial deference than the congressional actions addressed by Wechsler. Critics have argued that Wechsler's approach fails to recognize that Congress is not a level playing field[40] because the Senate gives equal votes to disparately situated states with widely varying populations, and some states can dominate others. A presumption in favor of leaving state and local legislation and resolutions in place responds to those criticisms by permitting subnational variation to thrive through state and local political processes.

Turning to the national level, we propose that congressional legislation that has TOGAs' approval also deserves more protection from judicial review. Here we draw upon the Supreme Court's decision in *New York v. United States*,[41] finding unconstitutional a federal statutory provision that penalized any state that failed to cooperate with other states in disposing of low-level nuclear waste. At issue was whether the legislation sufficiently respected the boundaries of state authority. Yet the underlying statute had been proposed by NGA. The Court substituted its judgment for that of both the Congress and the collective of governors speaking through the NGA. The Court ought, instead, to have accorded special deference to the proposal; more generally, when federal statutes are supported by TOGAs, courts ought to be reluctant to find them unlawful on federalism grounds.

3. Regulatory Rights

An argument for according TOGAs and TOGA-based work special recognition in litigation could also be a predicate for providing TOGAs specific roles in national policymaking processes. One example is the Advisory Commission on Intergovernmental Relations (ACIR), an organization chartered by the federal government, which existed from 1959 to 1996. ACIR's mission included "[b]ring[ing] together representatives of the Federal, State, and local governments for consideration of common problems."[42]

During different presidential administrations, TOGAs were utilized in varying ways as actors in the ACIR process to advance differing visions of how to allocate funds and authority in relationship to national or local control. For instance, in an executive circular issued in 1966, President Lyndon Johnson required federal agencies to consult with state and local officials in the development and implementation of major programs and regulations that affected states and localities.[43] USCM and other prominent TOGAs were specifically named as official liaison groups. According to some accounts, when TOGAs identified problems, federal agencies were required to negotiate with them.[44]

From a majoritarian standpoint, ACIR's efforts to encourage states and localities to channel their transnationalism through TOGAs could produce more policymaking consensus among diverse coalitions of subnational actors. But

36. Fed. R. Civ. P. 24(a).
37. Herbert Wechsler, *The Political Safeguards of Federalism: The Role of the States in the Composition and Selection of the National Government*, 54 Colum. L. Rev. 543, 546, 559-60 (1954).
38. *See, e.g.*, Crosby v. Nat'l Foreign Trade Council, 530 U.S. 363 (2000); Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie, 508 F. Supp. 2d 295, 37 ELR 20232 (D. Vt. 2007); Nat'l Foreign Trade Council, Inc. v. Giannoulias, 523 F. Supp. 2d 731 (N.D. Ill. 2007).
39. *See* Daniel A. Farber, *Climate Change, Federalism, and the Constitution*, 50 Ariz. L. Rev. 879, 881 (2008); Judith Resnik, *Foreign as Domestic Affairs: Rethinking Horizontal Federalism and Foreign Affairs Preemption in Light of Translocal Internationalism*, 57 Emory L.J. 31, 41-42 (2007); Nick Robinson, *Citizens Not Subjects: U.S. Foreign Relations and the Decentralization of Foreign Policy*, 40 Akron L. Rev. 647, 713-15 (2007).
40. Baker, *supra* note 24, at 955-56, 966-67.
41. 505 U.S. 144, 22, ELR 21082 (1992).
42. Pub. L. No. 86-380, §2(1), (4), 73 Stat. 703, 703-04, (1959).
43. Bureau of the Budget, Circular No. A-85 (June 28, 1967).
44. Arnold & Plant, *supra* note 2, at 111; John J. Gunther, Federal-City Relations: The Role of the Mayors in Federal Aid to Cities 230-33 (1990); Haider, *supra* note 3, 114-43.

what could be lost are individual actions on the part of states or localities that can spark innovation, even if those innovators also are outliers ahead of or behind any sort of emergent national consensus. Crafting a contemporary version of ACIR would require a reevaluation of which TOGAs ought to be named participants, whether representation outside the channels of state and local organizations would be desirable, and how to structure individualized contacts between federal officials and specific localities and states.

ACIR represents a model of a statute that brings various TOGAs together. Other regulatory processes are asymmetrical. For instance, the Clean Air Act (CAA or the Act)[45] generally does not allow states to "adopt or attempt to enforce" their own vehicle emissions standards, but it authorizes the EPA to grant California, the only state that had adopted such standards prior to the Act's enactment, a waiver for stricter enforcement standards than those imposed by the federal government.[46] Under the Act's "piggyback" provision, other states may adopt standards identical to those for which California receives a waiver.[47]

One could use this model to craft federal statutes that provide similar recognition to states or localities that have been particularly innovative in other areas of policy development—for instance, Seattle as one of the progenitors of the Mayors Climate Protection Agreement. Or Congress could impose a requirement that the federal government grant a waiver only if more than one—or five, or thirty—states signaled their intention to depart from the national standard. Congress could also encourage transnational networks of translocal actors, for instance by permitting states or localities to enact heightened emissions standards if they could provide evidence that one or more foreign nations or subnational governments outside the United States has already adopted such a law.

The caveat here is that waiver mechanisms, as currently formulated, give a great deal of power to federal agencies. California mounted a legal challenge to the Bush Administration's refusal to grant a waiver under the Clean Air Act for new regulations adopted by the state to require new motor vehicles to reduce emission of greenhouse gases—a policy that was subsequently reversed by the Obama Administration.[48] As further evidence of translocal co-venturing, California was supported in this litigation by other states hoping to take advantage of the Act's piggyback provision and implement standards comparable to California's.

B. *Aggregate Concerns: Regulating TOGAs by Structuring Representation and Forcing Disclosure*

We turn now from ways to create policy and legal advocacy roles for TOGAs to questions about superintendence of them. A major vehicle for such oversight is the potential control imposed by the legal and political infrastructure in each individual jurisdiction that joins a TOGA. Our focus here, however, is on national—albeit not necessarily federal—law.

The challenges of bonding representatives to those they represent and enabling the represented in turn to monitor their named leaders are commonplace in organizational, political, and class action theory. In the TOGA context, the concern is that collective activities can undermine accountability. For example, the National League of Cities has 1,600 dues-payers— ncluding some leagues of small cities—out of a total of 19,000 cities nationwide. Thus, it is unclear what percentage of cities is "represented" in the National League of Cities in the sense that those entities are affirmatively affiliating with the organization.

Regulatory responses can draw from experiences with class actions and corporations, in which disclosure, transparency, and accountability are mandated under the supervision of a federal judge or an agency. Given, however, that TOGAs are quasi-governmental and aim to serve as counterweights to federal authority, we would prefer to see such regulatory regimes developed by TOGAs themselves and the subnational entities from which they stem. TOGAs vary in their rules regarding when and how to use their voice or to advance policies on behalf of their membership. Regulatory regimes could make some of these practices mandatory by requiring that TOGAs develop mechanisms to clarify how they formulate positions and whether policies are the artifacts of their executive committees, fall within the purview of staff, or require affirmative assent from all members. Overregulation is an unattractive risk, given that TOGAs ought to be seen as participants in the set of associational freedoms essential to democracy. Regulatory regimes need not only be supervisory; another possible way to encourage particular structures would be to provide subsidies, such as tax credits or additional funding, for TOGAs.

C. *Federalist Precepts: Concurrency, Redundancy, and Multiple Jurisdictional Affiliations*

To conclude, we bring together what this overview instructs about the interactions among federalism, translocalism, and transnationalism. First, TOGAs are exemplary of the multiplication of "national" players rooted in states and localities, yet reaching across them. We can certainly understand the need for national economic and energy policies and the potential costs of fragmentation,[49] but multiple and interacting legal regimes cannot be avoided.

Second, multiplicity is part of the federalism vision; competition about ideas and responses exists at the national level and enlivens debate about the shape of regulation. Legal interventions should further this engagement. TOGAs enrich the public sphere because they are identified through affiliations with jurisdictional levels and populated by actors choosing to work in the public sector.

45. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
46. *Id.* §7543.
47. *Id.* §7507.
48. Felicity Barringer, *E.P.A. Grants California the Right to Enforce Emissions*, N.Y. Times, June 30, 2009; Felicity Barringer, *California Sues E.P.A. Over Denial of Waiver*, N.Y. Times, Jan. 3, 2008.
49. *See, e.g.*, David J. Bederman, *Diversity and Permeability in Transnational Governance*, 57 Emory L.J. 201 (2007); Paul B. Stephan, *What Story Got Wrong—Federalism, Localism Opportunism and International Law*, 50 Mo. L. Rev. 64 (2008).

Third, to be enthusiastic about TOGAs generally is not to suggest that positions taken by TOGAs are necessarily to be celebrated. Further, in terms of democratic theory and concerns about fairness, transparency, and accountability, more evaluation and likely regulation should help to frame the representative roles of TOGAs engaged in policymaking.

Finally, to return to where we began, the Mayors Climate Protection Agreement illustrates that the notion of an exclusive, national authority to deal with issues deemed "foreign" cannot succeed. COMPASS may stand against transnational environmental ventures, and federal judges may find various local actions preempted. But, as all of these rulemakers try to classify a set of problems as categorically national or local, the world in which they are operating belies the boundaries imposed. The mayors' innovations affected not only climate policy, but they also should change the understanding of U.S. federalism, as they exemplify the many new entities that federalism has helped to spawn.

TOGAS: The Fabric of Our Democracy

by Bill Becker and Amy Royden-Bloom

Bill Becker has been the Executive Director of the National Association of Clean Air Agencies, an association of state and local governmental air pollution control agencies in 52 states and territories and more than 165 major metropolitan areas across the country, since its inception in 1980. A graduate of Syracuse University (B.S. Civil Engineering) and Johns Hopkins University (Masters, Environmental Engineering), Mr. Becker has also advised Congress on environmental issues and headed the environmental departments at two national trade associations.

Amy Royden-Bloom is a senior staff associate with the National Association of Clean Air Agencies. She handles criteria pollutant, global warming, agriculture, and training issues for the association, which represents state and local air pollution control agencies in the United States. She has a bachelor's degree from the University of Virginia and a law degree from Harvard Law School.

In their article, *Kyoto at the Local Level: Federalism and Translocal Organizations of Government Actors (TOGAS)*,[1] Judith Resnik, Joshua Civin and Joseph Frueh describe the value of organizations they term "translocal organizations of governmental actors," or TOGAs, which "could be viewed as improving deliberative democracy because they bring in . . . a particularly interesting set of voices—those of officials structurally embedded in the problems of states and localities and cutting across both."2 The article then provides examples of how the law could recognize and harness the benefits TOGAs bring to the policymaking table, including through access to federal courts, deference to their decisions and specific roles in rulemaking processes. As a TOGA, we agree that TOGAs should be treated differently than other interest groups and that TOGAs play a unique and important role in our democracy. Below we provide additional examples of how these organizations have enhanced the national policymaking process and include recommendations for actions that Congress, federal agencies, and the courts could take to support and improve the effectiveness of TOGAs as significant actors in that policymaking process.

The organization we represent, the National Association of Clean Air Agencies (NACAA), could be viewed as the archetype of a TOGA. Formed over 30 years ago,[3] NACAA is an association of the air pollution control agencies in 53 states and territories and more than 165 major metropolitan areas throughout the country. We serve to encourage the exchange of information among air pollution control officials, to enhance communication and cooperation among federal, state, and local regulatory agencies, and to promote good management of our air resources. Notably, our members include both state and local officials.

Congress recognized how critical the role of state and local air pollution control agencies was in implementing the Clean Air Act (CAA or the Act).[4] One need look no further than the findings section of the CAA, where Congress wrote that air pollution control "is the primary responsibility of States and local governments."[5] Accordingly, while Congress prescribed many important and essential tasks for the Environmental Protection Agency (EPA)—ranging from setting federal, health-based air quality standards, developing motor vehicle emission standards, conducting research, and establishing important national control measures—the states and local governmental agencies were assigned the critical responsibilities of devising and implementing the control strategies necessary to achieve clean air in their jurisdictions. Thus, the CAA is a prime example of federalism because it creates a partnership among federal, state, and local governments to achieve an important policy goal: improving public health and welfare. In the end, if one level of government fails in this partnership, the entire program suffers. And this is precisely where a TOGA, like NACAA, can play such an important role. Below are several examples where TOGAs can and do enhance this national policymaking process.

In many cases, TOGAs can bring together the regionally and ideologically diverse interests of a group of state and local officials in order to affect national policy. One recent example is EPA's Tailoring Rule proposal regarding the CAA

1. Judith Resnik et al., *Kyoto at the Local Level: Federalism and Translocal Organizations of Government Actors (TOGAS)*, 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10768 (Aug. 2010) (a longer version of this Article was originally published at 50 Ariz. L. Rev. 709 (2008)).
2. *Id.* at 10771.
3. NACAA was originally known as the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO). The organization changed its name to NACAA on October 11, 2006.
4. 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-618.
5. *Id.* §7401(a)(3).

permitting program for greenhouse gas (GHG) emissions.[6] EPA proposed that only sources that emitted 25,000 tons of GHGs or more would be subject to the permitting provisions in the CAA, rather than the 100/250-ton threshold specified in the Act.[7] This interpretation would avoid the need for over six *million* new and existing sources to obtain permits for their GHG emissions, an overwhelming burden for state and local air agencies. EPA estimated that under its proposal approximately 400 sources would need to undergo a Prevention of Significant Deterioration (PSD) permitting analysis,[8] with less than 100 of these sources newly subject to PSD; approximately 14,000 large sources would need to obtain operating permits for GHG emissions under the operating permits program.

In a related proposal, EPA asked for comments about the date on which the GHG permitting program would be triggered, which turned on an interpretation of when GHGs would be "subject to regulation."[9] EPA suggested several interpretations, with the latest having the GHG permitting program triggered in the spring of 2010.[10] When NACAA discussed the proposals with its members, however, it heard two significant concerns. First, NACAA members believed that EPA had underestimated the number of sources subject to the CAA permitting provisions even at the 25,000-ton threshold—that in fact the number of sources was two to three times higher than the EPA had estimated. Second, a significant number of states indicated that they would require additional time beyond the spring of 2010 to change their own rules or regulations, which contained the 100/250-ton threshold as a state requirement and which EPA could not change by federal fiat. We worked with our members to identify some possible mechanisms the agency could use to ameliorate the state/local burden and noted these in our comments to EPA.[11] It appears, in light of recent public statements by EPA Administrator Lisa Jackson, that the agency heard our concerns and used our comments in creating its proposed solution.[12]

TOGAs can also help a federal agency conduct "one-stop shopping" in soliciting the views of a national organization of state and local agencies. In essence, we help do EPA's work of assimilating the views of all the agencies and providing them to EPA. For example, NACAA comments on all major rulemakings, so EPA can use our committee calls as a sounding board to bounce ideas that the agency is considering off our members.

In some instances, the federal government fails to fulfill statutory requirements or is unable or unwilling to follow the recommendations of state and local governments. In these cases, TOGAs can take matters into their own hands by developing model rules or guidance that states and localities can adopt to fill the federal regulatory gap. For example, in 2007, a court decision vacated rules promulgated by EPA establishing Maximum Achievable Control Technology (MACT) standards to limit emissions of hazardous air pollutants from industrial, commercial, and institutional boilers and process heaters. When EPA fails to meet a deadline for establishing limits under §112 of the CAA (or where the Supreme Court vacates a rule), state and local permitting authorities are required under §112(j)—also known as the CAA's "hammer provisions"—to set the limits for the affected facilities on a case-by-case basis, which constitutes an extremely resource-intensive and duplicative effort. These limits must be based on the use of MACT. In 2007, NACAA convened an expert technical workgroup to gather and review available information and provide recommendations for making MACT determinations for boilers. In June 2008, the association released its model permit guidance, which states and localities plan to use as a substitute for calculating MACT limits on a facility-by-facility basis.[13] In another example, in 2005, NACAA developed a model rule[14] in response to widespread concerns that EPA's Clean Air Mercury Rule (CAMR), issued in March 2005, was inconsistent with the requirements of the Clean Air Act and would not result in adequate reductions in emissions of mercury from coal-fired power plants to protect public health. In fact, the court validated NACAA's concerns by striking down CAMR.[15] Since publication of the NACAA document, over one-half of the states have used the NACAA model rule as they developed programs more stringent than CAMR.

TOGAs can also provide regulatory tools to their members to assist in accomplishing their work, particularly in areas where the federal agencies lack the resources (or desire) to help. For example, NACAA has developed sev-

6. U.S. EPA, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 55292 (proposed Oct. 27, 2009).
7. *Id.*
8. PSD applies to new major sources or major modifications and requires installation of the best available control technology (BACT), an air quality analysis, an additional impacts analysis, and public involvement.
9. U.S. EPA, Reconsideration: Prevention of Significant Deterioration (PSD): Reconsideration of Interpretation of Regulations That Determine Pollutants Covered by the Federal PSD Permit Program, 74 Fed. Reg. 51535 (proposed Oct. 7, 2009).
10. *Id.*
11. Letter from Nat'l Ass'n of Clean Air Agencies, to U.S. Envtl. Prot. Agency on EPA's Proposed Tailoring Rule (Dec. 28, 2009), *available at* www.4cleanair.org; Letter from Nat'l Ass'n of Clean Air Agencies, to U.S. Envtl. Prot. Agency on EPA's Proposed Reconsideration of Its Prior Regulatory Interpretation of the Phrases "Subject to Regulation" and "Regulated Pollutant" (Dec. 7, 2009), *available at* www.4cleanair.org.
12. In a letter to Sen. Jay Rockefeller, EPA Administrator Jackson said the agency would phase in GHG permitting requirements for sources beginning in 2011 and that the threshold for permitting would be "substantially higher" than the 25,000-ton limit EPA originally proposed. Letter from Lisa Jackson, Administrator, U.S. Envtl. Prot. Agency, to The Honorable Jay D. Rockefeller IV (Feb. 22, 2010), *available at* http://epa.gov/oar/pdfs/LPJ_letter.pdf.
13. Nat'l Ass'n of Clean Air Agencies, *Reducing Hazardous Air Pollutants From Industrial Boilers: Model Permit Guidance* (June 2008), *available at* www.4cleanair.org.
14. Nat'l Ass'n of Clean Air Agencies, *Regulating Mercury From Power Plants: A Model Rule for States and Localities* (Nov. 2005), *available at* www.4cleanair.org.
15. New Jersey v. EPA, 517 F.3d 574, 38 ELR 20046 (D.C. Cir. 2008).

eral menus of options for controlling emissions, including emissions of fine particulate matter,[16] nitrogen oxides[17] and GHGs and conventional air pollutants.[18] We have also developed model rules on reducing paint emissions[19] and diesel truck emissions.[20]

TOGAs are also an important advocacy mechanism, and their voices carry extremely significant weight when TOGAs like NACAA speak for their members. For example, NACAA regularly testifies before Congress on the need for additional resources for our members. We also testify before Congress on legislative proposals related to air pollution. One of our key messages is the need to preserve the ability of state and local entities to regulate more stringently than the federal government.

Finally, we have participated in lawsuits to fight for important state and local rights or to provide our unique perspective in litigation. For example, in litigation regarding whether the South Coast Air Quality Management District could require public fleets to purchase cleaner cars, NACAA and other amici argued that "disregard of state sovereignty over state and local purchasing decisions would undermine environmental federalism and jeopardize vital state and local interests."[21] We also submitted an amicus brief opposing EPA's Maximum Achievable Control Technology (MACT) standard for Industrial, Commercial, and Institutional Boilers and Process Heaters. The final EPA rule, issued on September 13, 2004, allowed sources to obtain exemptions to the MACT control requirements based on risk.[22] We argued that allowing risk considerations in the establishment of MACT standards is contrary to the intent of the CAA, which calls for MACT to mandate a control technology, followed eight years later by residual risk standards to account for remaining health risks. We also provided information about the resource burden that the risk-based exemptions would impose on the state and local agencies that will review risk demonstrations and incorporate them into Title V permits.

Given the singular nature of TOGAs and their value in the policymaking process, and as a general matter, there are four actions that federal agencies and the courts should take to further enhance the effectiveness of TOGAs like NACAA in the policymaking process.

1. Federal agencies should interpret the Federal Advisory Committee Act (FACA) as permitting them to consult freely with TOGAs during the development and implementation of rules and policies. At times EPA has raised the concern of violating FACA as an obstacle to including NACAA in key discussions regarding federal rules and policies that would affect our member agencies. We read §4(c) of FACA as clearly indicating that FACA does not apply to TOGAs.[23] In addition to being consistent with the FACA statute, it makes sense to recognize TOGAs as agents of their members and thus treat TOGAs as if they were state and local government officials. This is particularly important for the CAA, which was set up by Congress to be a partnership among local, state and federal governments.
2. Federal agencies should be required to consult with relevant TOGAs prior to proposing rules or policies that would affect the TOGA members. For example, after EPA sets or revises a National Ambient Air Quality Standard, states are then required to submit State Implementation Plans (SIPs) indicating how they intend to meet or maintain the new or revised standard. EPA often issues a rule providing guidance to states on what needs to be included in SIPs. EPA should involve NACAA in developing the implementation rule *prior* to the proposal.
3. As the Supreme Court concluded in *Massachusetts v. EPA* with respect to states' standing,[24] in evaluating whether TOGAs meet standing requirements, courts should consider the special status of TOGAs as representatives of state and local government officials and defenders of state and local rights as against federal programs that may take away those rights.
4. While we believe that TOGA support for a federal statute should not mean the statute is immune from court review on federalism grounds, we do think that courts should take note when federal statutes are supported by TOGAs in their consideration of whether such statutes are unlawful on federalism grounds or not.

Looking ahead, as the federal government takes action to address global warming in the near future, it should use the expertise and resources of TOGAs for the reasons mentioned above. Most importantly, it is critical that state and local authorities not be preempted by federal agencies or Congress and that they retain the ability to adopt regulations and programs more stringent than those adopted the federal government. As noted in the MACT and mercury examples above, state and local authority is an important "backstop"

16. Nat'l Ass'n of Clean Air Agencies, *Controlling Fine Particulate Matter Under the Clean Air Act: A Menu of Options* (Mar. 2006), *available at* www.4cleanair.org.
17. Nat'l Ass'n of Clean Air Agencies, *Controlling Nitrogen Oxides Under the Clean Air Act: A Menu of Options* (July 1994), *available at* www.4cleanair.org.
18. Nat'l Ass'n of Clean Air Agencies, *Reducing Greenhouse Gases & Air Pollution: A Menu of Harmonized Options* (Oct. 1999), *available at* www.4cleanair.org.
19. Nat'l Ass'n of Clean Air Agencies, *Regulating Air Emissions From Paint: A Model Rule for State and Local Air Agencies* (Oct. 2000), *available at* www.4cleanair.org.
20. Nat'l Ass'n of Clean Air Agencies, *Cleaning Up Diesel Trucks: A Model Rule for States* (Sept. 2004), *available at* www.4cleanair.org.
21. Amicus Curiae Brief of National League of Cities et al. in Support of Defendant-Appellees, Engine Mfrs. Ass'n v. South Coast Air Quality Mgmt. Dist., 498 F.3d 1031 (9th Cir. 2007) (No. 05-56654), 2006 WL 4055757.
22. Brief of the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials as Amici Curiae in Support of Petitioners, Natural Res. Def. Council v. E.P.A., 489 F.3d 1364 (D.C. Cir. 2007) (No. 04-1325), 2006 WL 2618953.
23. Section 4(c) of FACA reads in relevant part: "Nothing in this Act shall be construed to apply to . . . any State or local committee, council, board, commission, or similar group established to advise or make recommendations to State or local officials or agencies." 5 U.S.C. App. 2, §4(c). Further, GSA regulations implementing FACA make clear that the law should not be read to hinder discussions among local, state, and federal officials, including associations of state officials.
24. 549 U.S. 497, 521-22, 37 ELR 20075 (2007).

when the federal government fails to act or does not sufficiently protect the environment and public health. TOGAs can also play important roles in effectuating global warming policy and law—educating the entire membership of the legislation's or regulation's provisions, helping to develop tools/guidance/model rules for implementation, filling in gaps where necessary, and working with EPA and other federal agencies to help them develop guidance. Tackling global warming will require action at all levels of government—federal, state, and local—and TOGAs can help make this partnership extremely effective.

Ratifying Kyoto Via Local Actors: Accomplishments and Limitations of Local Cap-and-Trade Programs

by Roger R. Martella and James W. Coleman

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James Coleman is an associate at Sidley Austin LLP. His practice focuses on climate change, including climate legislation, climate tort suits, NEPA, state low carbon fuel standards, and EPA's full suite of GHG rulemakings.

The authors of the current piece[1] argue that "the Mayors Climate Protection Agreement illustrates that the notion of an exclusive, national authority to deal with issues deemed 'foreign' cannot succeed."[2] The argument is that while "rulemakers try to classify a set of problems as categorically national or local, the world in which they are operating belies the boundaries imposed."[3] They see groups such as the U.S. Conference of Mayors and the National Governors' Association playing a natural role in addressing issues that, like climate change, have ramifications simultaneously at the local, national, and international levels. Noting that these groups operating in this capacity are technically translocal nongovernmental organizations of local government officials, the authors helpfully dub them TOGAs.

The authors convincingly argue that TOGAs are of increasing importance across the spectrum of political issues. But it is worth noting that more traditional organizations of local actors are already addressing the specific issue highlighted by the authors—global climate change—through regional greenhouse gas (GHG) cap-and-trade systems. These regional systems have sprung up across the United States and across the world. TOGAs, in turn, have the opportunity to play a critical role in bridging these distinct local efforts to address a fundamentally global challenge.

The authors also identify specific legal doctrines—such as federal preemption—as impediments to the efforts of TOGAs because these doctrines privilege uniform national laws over patchworks of local laws. Consistent with this theory, regional cap-and-trade systems are indeed imperfect because of their limited geographical scope, a challenge highlighted with climate change due to the lack of nexus between regulating GHG emissions at the local level and local impacts from climate change. But the pursuit of a comprehensive national GHG regime, even if it preempts local systems to some extent, does not by any means eliminate critical opportunities for local actors, coordinated by TOGAs, to play a key role in contributing to climate change solutions.

I. Regional GHG Cap-and-Trade Regimes

Despite climate change being a global issue warranting a national, if not a global, response, in the United States, state, local, tribal, and regional governments have led the charge to reduce GHG emissions. These efforts have taken numerous forms, including efforts by California to reduce GHG emissions from cars and light-duty trucks, low carbon fuel standards, controls on stationary sources, and even consumer energy efficiency standards for appliances and light bulbs.

Perhaps most prevalent among such efforts has been the establishment of state and regional market-based cap-and-trade systems. Cap-and-trade regimes function by placing a quantitative cap on emissions of a pollutant from a given category of sources. The overall cap is broken into smaller quantities of the pollutant, termed allowances, that a source must possess if it plans to emit the pollutant. Thus, the number of allowances held by a source determines how much pollutant it can emit. The cap administrator usually either (i) distributes these allowances for free to existing sources, or (ii) sells the allowances at an auction. Following this initial distribution, sources may buy or sell these allowances as their anticipated emissions change. Cap-and-trade systems often also allow covered sources to purchase offsets instead of allowances. Offsets are certified reductions in emissions from sources not subject to the cap-and-trade regime. These

1. Judith Resnik et al., *Kyoto at the Local Level: Federalism and Translocal Organizations of Government Actors (TOGAS)*, 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10768 (Aug. 2010) (a longer version of this Article was originally published at 50 Ariz. L. Rev. 709 (2008)).
2. *Id.* at 10775.
3. *Id.*

offsets can substantially reduce the cost of compliance with a cap, because sources outside the cap can often reduce their emissions more cheaply than sources subject to the cap.

The largest GHG cap-and-trade system is the European Union Greenhouse Gas Emission Trading System (EU ETS). The system currently covers 27 nations and 11,000 stationary sources that emit large quantities of carbon dioxide (CO_2).[4] The system was adopted in response to the Kyoto Protocol, which called for signatory nations to cut their emissions of GHGs by 8% from 1990 levels by the year 2012. The European Council has expanded on this commitment by agreeing to reduce emissions 20% by the year 2020.[5] In the period from 2005 to 2007, the system was first introduced with a trial phase designed to create a working allowance market; this market has been employed, since 2008, to achieve emissions reductions.[6] EU ETS allows participant nations the ability to determine how to make the initial distribution of allowances to the regulated sources, but, beginning in 2013, will shift to a more centralized design.[7]

In the United States, in the absence of a national cap-and-trade program, states and local governments have stepped in to fill the void. The largest functioning GHG cap-and-trade regime in the U.S. is the Regional Greenhouse Gas Initiative (RGGI), which covers ten northeastern U.S. states. RGGI, which began in 2009, only covers large generators of electricity, and like EU ETS, only covers CO_2 emissions. As in EU ETS, the individual states have the right to distribute allowances as they see fit: in 2009 Delaware auctioned off 50% of these allowances, while New Jersey and Rhode Island auctioned off 99%. Unlike EU ETS, RGGI seeks to stabilize rather than reduce emissions, aiming to keep them at 2009 levels though 2014.[8]

In addition to the functioning regimes, there are several proposed cap-and-trade programs in the United States at various stages of completion. The most sophisticated program is the Western Climate Initiative (WCI), begun by seven U.S. states and four Canadian provinces. Ambitious design recommendations were released in September of 2008.[9] The WCI would apply to most sources that emit 25,000 metric tons or more of CO_2 annually.[10] And unlike EU ETS or RGGI, the WCI would apply to a full slate of GHGs, including methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.[11] WCI seeks a 15% reduction from 2005 GHG emission levels by 2020.[12] This dramatic program has proven difficult to implement, however: Arizona has recently dropped out of the cap-and-trade regime, and only California is on track to begin the program on schedule in 2012.[13]

At the same time, six Midwestern states and one Canadian province are parties to another nascent cap-and-trade system, titled the Midwestern Greenhouse Gas Reduction Accord (MGGRA). And in Florida, the legislature passed HB 7135, authorizing the state to promulgate rules for a cap-and-trade system that would require ratification by the legislature.[14] In total, 24 U.S. states are either participating in, or parties to, some kind of proposal for a GHG cap-and-trade system.

Finally, it is worth mentioning that two Australian states, New South Wales and the Australian Capital Territory, have established a different system of GHG control for electricity generators, labeled the Greenhouse Gas Reduction Scheme (GGAS), which seeks to reduce GHG emissions from the electricity sector.[15] The GGAS is not a cap-and-trade system, but instead requires the electric sector to reduce GHG emissions by a set amount.[16]

These efforts to create regional cap-and-trade systems are pursuing many of the goals that the authors would assign to TOGAs. Yet, these existing efforts should not diminish the potential role for TOGAs. Given that climate change is a global challenge and even a vigorous regional system by itself will have little impact on both local and global climate change impacts, TOGAs can play a necessary coordinating role by which distinct local and regional efforts can be effectively amassed to realize a de facto impact beyond any specific geographic limits of a distinct system. At the same time, this role for TOGAs would preserve the abilities of local and regional systems to adapt to local politics, policies, and industries, while enabling such efforts to take on national import through the TOGA coordinating function.

4. European Environment Agency, Greenhouse Gas Emission Trends and Projections in Europe 2007: Tracking Progress Towards Kyoto Targets (2007), *available at* http://www.eea.europa.eu/publications/ eea_report_2007_5/Greenhouse_gas_emission_trends_and_projections_in_Europe_2007.pdf.
5. Pew Center on Global Climate Change, The European Union's Emissions Trading Program in Perspective (May 2008), *available at* http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf.
6. European Commission, EU Action Against Climate Change: The EU Emissions Trading Scheme (2008), *available at* http://ec.europa.eu/environment/climat/pdf/brochures/ets_en.pdf.
7. *Id*. at 12.
8. Regional Greenhouse Gas Initiative, Overview of RGGI CO_2 Budget Trading Program (Oct. 2007), *available at* http://rggi.org/docs/program_summary_10_07.pdf.
9. Design Recommendations for the WCI Cap-and-Trade Program, *available at* http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/design-recommendations.
10. *Id.* §3.1.
11. *Id.* §1.1.
12. Western Climate Initiative, Frequently Asked Questions, http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/faq (last visited June 7, 2010).
13. Cassandra Sweet, *Arizona Quits Western Cap-And-Trade Market; Utah Mulls Similar Move*, Dow Jones Newswires, Feb. 12, 2010, http://www.nasdaq.com/aspx/stock-market-news-story.aspx?storyid=201002122005dowjonesdjonline000608&title=arizona-quits-western-cap-and-trade-market-utah-mulls-similar-move.
14. Governor's Action Team on Energy & Climate Change, Florida's Energy & Climate Change Action Plan, Oct. 15, 2008, 4-1-4-10, *available at* http://www.dep.state.fl.us/climatechange/files/action_plan/ chap4_cap_trade.pdf.
15. Introduction to the Greenhouse Gas Reduction Scheme (Sept. 2008), *available at* http://greenhousegas.nsw.gov.au/documents/Intro-GGAS.pdf.
16. *Id.*

II. Limitations of Regional Cap-and-Trade Regimes and Opportunities for TOGAs

The authors of the current piece argue "that federal preemption is often neither required nor appropriate," arguing that "[a]bsent a clear statement from Congress directing preemption, the judiciary ought to be reluctant to preempt local majoritarian activities undertaken by TOGAs."[17] This argument may be misplaced because it is unclear that TOGAs' activities are in danger of preemption. As the authors note, one of the characteristics of TOGAs is that their organizations are voluntary, and their actions are nonbinding. Thus, there would presumably be little occasion to find their actions preempted.

Furthermore, when traditional local governments have undertaken mandatory GHG control systems, the U.S. federal government has deliberately minimized preemption of such systems. Thus, when the U.S. House of Representatives passed a comprehensive cap-and-trade bill, no state command-and-control efforts aimed at reducing GHGs were preempted. Regarding cap-and-trade systems, the American Clean Energy and Security Act (ACESA) would only have preempted state cap-and-trade systems through 2017.[18] And it did not explicitly preempt *regional* cap-and-trade systems at all, which would leave substantial uncertainty about the fate of regimes like RGGI and the WCI. Recently, the Kerry-Lieberman proposed American Power Act departed from the House bill by preempting certain state (but arguably not regional) cap-and-trade systems, but preserving other state and local GHG control authority and compensating those states who have developed cap-and-trade systems to date.[19]

Thus, in the specific arena of climate change, it does not seem that local law faces an undue risk of exhaustive preemption. On the other hand, these local cap-and-trade regimes do face challenges. But these challenges are not the result of legal doctrines. Instead, these challenges arise from the inherent difficulty of coordinating voluntary action between independent sovereigns. Thus, the authors' focus on the role that TOGAs can play in addressing climate change seems particularly relevant in this context.

Smaller, regional GHG systems have several disadvantages compared to larger, more comprehensive systems. First, larger systems allow sources to find the most economically efficient GHG reductions first;[20] indeed, a global market could reduce the costs of compliance as much as 20-80%.[21] Second, a broader trading system would be more liquid, predictable, and less distorted due to the larger number of buyers and sellers. Third, regional systems generally push emissions out of the system into non-regulated regions, a phenomenon known as "carbon leakage." A local cap could even increase global GHG emissions if the activities that emit GHGs move to areas that are less energy efficient.

Given the advantages of a larger system, it would seem important to coordinate regional cap-and-trade regimes. But this too presents seemingly insurmountable problems. One of the most pressing is the difficulty of reconciling regimes that call for different magnitudes of emission reductions. Integrating regional systems would create incentives for states and provinces to set artificially high caps. Setting a high cap would mean that a region's industries would have little to no cost of compliance compared to other more stringent zones; worse, these industries could export their excess allowances to industries in a region where they are in higher demand due to a more stringent cap. This would allow a jurisdiction with less stringent caps to subsidize its own industries under the guise of environmental legislation. Of course, few regions would be willing to integrate with a region employing such a cynical gambit. But at the margin, it will always be in a jurisdiction's narrow economic interest to join its regime with broader and stricter regimes, while maintaining a laxer cap at home.

Many of the other unique characteristics of each regime would make them difficult to integrate. For instance, while the operative cap-and-trade systems currently apply only to CO_2, most new proposals include other GHGs. In these circumstances, industries emitting partially covered GHG emissions would likely end up in regions where their emissions were not covered. Similarly, there is wide variation in the types of entities covered by different systems, in the methods of allowance distribution, and in the oversight over offsets prescribed by each system. Each of these differences would make it difficult to join the separate systems into a coherent whole.

Thus, the limitations of regional GHG regimes are largely a product of the lack of central authority over any possible coordination. In this respect, TOGAs, despite being voluntary actors, can be presented the opportunity to play this coordinating role needed to address the fundamental flaws described above in distinct and discrete local and regional systems. The challenges of approaching a global challenge with local solutions is formidable if not futile by itself given the lack of ability of any one municipality, state, Indian tribe, or even region to contribute significantly to reducing climate change impacts locally, nationally, or globally. TOGAs, by pooling such distinct and discrete efforts together, may offer the needed promise for the ad hoc solution to offer significant action consistent with Kyoto within the United States.

17. Resnik, Civin, & Frueh, *supra* note 1, at 10773.
18. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong., §861 (as passed by the House of Representatives, June 26, 2009).
19. American Power Act §§788(e), 806.
20. Ross Garnaut, The Garnaut Climate Change Review 228 (2008).
21. Nicholas Stern, Key Elements of a Global Deal on Climate Change 6 (London School of Economics, May 2008), *available at* http://www.lse.ac.uk/collections/granthamInstitute/publications/Key%20Elements%20of%20a%20Global%20Deal%20-Final%20version%201300%2030-4.pdf.

ARTICLE

Solving the U.S. Nuclear Waste Dilemma

by Richard B. Stewart

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I. Introduction

Current U.S. nuclear waste law and policy is bankrupt. The 1982 Nuclear Waste Policy Act (NWPA) set a 1998 deadline for opening a deep geologic repository to receive spent nuclear fuel (SNF) and high-level waste (HLW) from reprocessing. In 1987, Congress amended the Act to designate Yucca Mountain in Nevada as the only potential site, and severely restricted the development of any federal facility for consolidated storage of nuclear waste. Nevada's unrelenting opposition to the Yucca repository eventually succeeded with the election of Barack Obama as President. The Obama Administration has withdrawn funding for Yucca and withdrawn its application for licensing by the NRC. The bankruptcy of the highly prescriptive and preemptive NWPA leaves large volumes of defense nuclear wastes and mounting inventories of spent nuclear fuel without a destination pathway. The failure of Yucca contrasts with the success of the Waste Isolation Pilot Project (WIPP) repository in New Mexico, which was developed entirely outside of the rigid NWPA framework. WIPP, the only operating deep geologic nuclear waste repository in the world, emerged over a twenty-year period through a largely unplanned process of contestation and negotiation between the federal government and the State of New Mexico. WIPP opened in 1998 and has been receiving substantial volumes of certain defense wastes from Department of Energy (DOE) facilities.

At the same time as it cancelled Yucca, the Obama Administration has proposed massive government assistance for the construction of large numbers of new nuclear power plants. The failure of the federal government to honor its promises to dispose of spent nuclear fuel, which continues to accumulate at existing power plants, is a potentially potent political weapon for those who oppose expansion of nuclear power. Obama is looking to the distinguished Blue Ribbon Commission on America's nuclear future recently appointed by Energy Secretary Chu to solve his nuclear dilemma.

The tale of the two repositories—failed Yucca and successful WIPP—has important lessons for future policy. The development of one or more repositories for the wastes once destined for Yucca, as well as arrangements for interim consolidated storage, must be based on a step-by-step approach to decisionmaking that includes the informed assent of the public and of host localities rather than unilateral federal fiat.

II. Overview of Nuclear Waste Types, Sources, and Stocks

Nuclear waste is generally classified into six main categories: SNF, HLW, transuranic waste (TRU), low-level waste (LLW), mixed waste that is both radioactive and chemically toxic and regulated under the Resource Conservation and Recovery Act (RCRA) as well as the Atomic Energy Act (AEA), and uranium mill tailings (UMT). These categories are legal constructs that are often not based on risk-relevant differences in their radioactive and other characteristics or the treatment, management, storage, and disposal issues that they pose. This article focuses on the more highly radioactive wastes in the first three categories.

Spent Nuclear Fuel (SNF) refers to the spent fuel rods that have been irradiated in a nuclear reactor, mostly from civilian nuclear power plants. SNF includes both highly active but short-to-medium- lived fission products (principally cesium and strontium) as well as medium-active but long-lived radionuclides with half-lives of thousands of years.

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High-level waste (HLW) is highly radioactive material resulting from the reprocessing of SNF to extract plutonium and uranium. Most of the nation's HLW was created in the course of nuclear weapons production. A limited amount of HLW was generated from reprocessing civilian SNF before such reprocessing was terminated in the 1970s.

Transuranic Waste (TRU). In contrast to HLW and SNF, which are defined by the processes that produce them, TRU is defined by its characteristics. TRU includes waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes with half-lives greater than twenty years per gram of waste, but excluding HLW and certain other wastes. There are two subcategories of TRU: lower radioactivity contact-handled TRU (CH-TRU), which constitutes the great bulk of TRU, and higher radioactivity remote-handled TRU (RH-TRU), which must be handled and transported in shielded casks.

Low-Level Waste (LLW) is a residual category that encompasses a wide variety of wastes, generated by defense activities, nuclear power production, and industrial, medical, and scientific applications. There are comparatively large volumes of low activity wastes, and much smaller volumes of higher activity wastes. Some of these wastes are disposed of at commercial and government landfills, others are stored at generator sites.

The focus of this Article is on the most highly radioactive wastes, HLW, SNF, and TRU. TRU is being disposed of at WIPP, while the other wastes are stored at the sites where they were generated. The current inventories of SNF and HLW in the United States amount to 73,000 metric tons in the form of heavy metal (MTiHM). Of this total, defense HLW at DOE sites amounts to 12,505 MTiHM. Another 2,500 MTiHM consists of defense activity SNF stored at DOE sites. More than 54,000 MTiHM is civilian SNF now being stored in reactor pools or in dry storage air-cooled containers at sites contiguous to the 131 civilian nuclear reactors at sixty-four locations in thirty-nine states. Further, an additional 47,000 MTiHM of civilian SNF will have been generated by 2048 even if no new nuclear power plants are built. The total of all of these categories far exceeds the statutory maximum capacity of Yucca, at 70,000 MTiHM. With the cancellation of Yucca, all of this waste now lacks any disposal pathway.

III. The Path to the Present Impasse: A Short History of U.S. Nuclear Waste Regulation

A. The First Three Decades

In 1946, Congress passed the AEA, which created the Atomic Energy Commission (AEC) to run a federal monopoly on both military and non-military applications of nuclear power.[1] In the 1950s, the Eisenhower Administration promoted private sector use of nuclear technology for electricity production and other uses; Congress amended the AEA to authorize such use. Although the AEC's broad regulatory authority encompassed wastes,[2] disposal of defense HLW from weapons production was a low priority and the search for disposal sites progressed very slowly. A seminal 1957 National Academy of Sciences (NAS) report found that a deep geologic repository was the best available option for nuclear waste disposal and that bedded salt was likely the best medium in which to build such a repository.

The first serious federal effort to develop a nuclear waste repository was prompted by a 1969 fire at the AEC's Rocky Flats, Colorado nuclear weapons plant that forced removal of TRU wastes for storage in Idaho, which demanded their relocation. After an aborted attempt to develop a repository in Kansas, the federal government, in 1972, responded to an expression of interest by the economically depressed town of Carlsbad, New Mexico in hosting a repository. The eventual result was the development, over a 25-year period, of the WIPP repository for defense TRU wastes in a salt bed on federal land in southeastern New Mexico.[3]

Because of the desire to separate nuclear regulation from management and operations, Congress, in 1974, passed the Energy Reorganization Act, which split the AEC into the Nuclear Regulatory Commission (NRC), an "independent" agency with five members,[4] and the Energy Research and Development Administration (ERDA), whose head answered to the President.[5] The NRC was put in charge of licensing civilian nuclear reactors and reprocessing facilities, as well as all stages of commercial HLW and SNF management, storage, and disposal. The NRC's licensing authority did not extend to defense facilities and wastes, which were to be managed and regulated solely by ERDA. ERDA subsequently became the DOE in 1977.[6] Also, on its creation in 1970, the Environmental Protection Agency (EPA) acquired the AEC's authority to issue radioactivity exposure standards to protect public health and the environment.

B. Opposition to Nuclear Power and the End of Civilian SNF Reprocessing

The premise of civilian nuclear power was that SNF would be reprocessed to extract plutonium and uranium for reuse as

1. 42 U.S.C. §2011.
2. *Id.* Section 2201 gives the AEC (now NRC) the power to: "establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary or desirable to promote the common defense and security or to protect health or to minimize danger to life or property. 42 U.S.C. §2201.
3. *See, e.g.,* Chuck McCutcheon, Nuclear Reactions: The Politics of Opening a Radioactive Waste Disposal Site 12 (2002); U.S. DOE, Pioneering Nuclear Waste Disposal (2000), DOE/CAO-00-3124, at 7; Gary L. Downey, *Politics and Technology in Repository Siting: Military Versus Commercial Wastes at WIPP, 1972-1985*, 7 Tech. in Soc'y 47, 53 (1985) (discussing the WIPP repository for defense TRU wastes).
4. 42 U.S.C. §5841.
5. *Id.* §5811.
6. *Id.* §7151(a).

fuel. Although reprocessing produced significant amounts of HLW, reprocessing diverted attention from disposal issues. Civilian reprocessing facilities, however, encountered serious financial, operating, and environmental problems. In 1977, President Carter applied the coup de grace by halting all federal support for civilian SNF reprocessing, due to proliferation and security concerns posed by the plutonium produced. There has been no reprocessing of civilian SNF in the US since then, although a number of other countries have carried out civilian SNF reprocessing. Meanwhile, groups opposed to nuclear power used litigation to block new plants, invoking the SNF waste issue, among others. California and a number of other states passed legislation blocking new nuclear plants until a means for disposing of wastes was demonstrated. These factors, along with economic and other factors, brought construction of new plants to a halt.

The NRC was prompted to initiate a waste confidence rulemaking to address the question of whether or not it should license new nuclear plants because of the environmental risks posed by additional quantities of SNF.[7] Concerns that the lack of a repository would stifle the future of the nuclear power industry eventually led the industry and the federal government to press for a legislative solution.

C. *The Carter Interagency Review Group and the Push for Nuclear Waste Burial*

Seeking to engage both experts and the broader public in an effort to develop a coherent and comprehensive national nuclear waste disposal policy, President Carter, in 1978, assembled the Interagency Review Group on Nuclear Waste Management (IRG). The IRG issued a report based on the premise that the generation of citizens that has enjoyed the benefits of nuclear energy has an obligation to responsibly dispose of the waste in perpetuity.[8] It endorsed deep geological storage, and recommended that detailed studies of specific potential repository sites "in different geologic environments" (including salt, shale and tufa) should begin "immediately" in order to identify at least two (and possibly three) repositories that could become operational by the end of the 20th century.[9] These repositories should be located "ideally in different regions of the country."[10]

D. *The Nuclear Waste Policy Act*

The political saliency of nuclear waste and the work of the IRG also led to Congress' enactment in 1982 of the Nuclear Waste Policy Act (NWPA).[11] It mandated the development of permanent repositories for disposing of SNF and HLW. NWPA places responsibility on the federal government for the disposal of commercial SNF and HLW in deep geological repositories. The Act required the utilities to pay a fee on nuclear electric generation, with the proceeds to be used to finance repository development. In return, the federal government undertook to take SNF from the utilities no later than January 31, 1998.[12] The Act also provided for disposal of defense HLW in a repository.

In an aim to promote regional equity, the Act provided for the siting and construction of two federal repositories on a tight timetable, with siting of the second repository to be conducted after the first.[13] The Act provided for a centralized technocratic process of site selection by DOE, based on factors including geological suitability, distances from populations, transportation, and cost. In the first round of siting, DOE was required to nominate five sites suitable for characterization and, by January 1, 1985, to recommend three of these to the President for characterization as candidate sites. It was then to select one of the sites for licensing and construction of a repository with the goal of opening it to receive wastes by 1998.

A limit was placed on the capacity of the first repository (no more than 70,000 metric tons) in order to ensure that the second repository would in fact be selected. It was anticipated that the first round of siting would concentrate on sites in the West and the second round of siting would focus on sites in the East. The NWPA also provides for the development of Monitored Retrievable Storage (MRS) facilities, constructed and operated by DOE. Such facilities would be designed for indefinite storage of SNF and civilian HLW, but also allow for ready retrieval of wastes for further processing or permanent disposal. The Act authorized construction of only one MRS.

The federal government encountered strong opposition from states in which candidate sites were located, and political pushback caused DOE to cancel the search for a second repository in the eastern U.S. It eventually designated three sites in the West for the first repository, located in Nevada (Yucca Mountain), Texas, and Washington. The estimated cost of conducting detailed characterizations of these sites had mushroomed to $1 billion per site.

E. *Congress Designates Yucca Mountain*

In 1987, Congress amended the NWPA to require that only one site be characterized, and dropped the requirement of a second repository.[14] Senator Bennett Johnson of Louisiana, the powerful Chairman of the Senate Energy Committee, was concerned that escalating costs and intensified opposition from potential host states would scuttle the entire program unless Congress moved swiftly to designate the repository site. DOE's preliminary rankings placed Yucca over the sites in Washington and Texas, but the scores were

7. Luther J. Carter, Nuclear Imperatives and Public Trust: Dealing With Radioactive Waste 88 (1987).
8. Interagency Review Group on Nuclear Waste Management, U.S. DOE, Report to the President by the Interagency Review Group on Nuclear Waste Management (1979) [hereinafter Interagency Report] at 16, 31, Appendix H-4.
9. *Id.* at Appendix H-9.
10. *Id.*
11. 42 U.S.C. §10101.
12. *Id.* §10131(a)(4).
13. *See id.* §§10132(a), 10134(a)(2)(A).
14. *Id.* §10172(a).

all close.[15] Congress' choice of Yucca was driven by the influence of powerful members from Texas and Washington. Nevada lacked clout and was steamrolled.

F. Government and Private Centralized Storage Facilities

Pursuant to the 1982 NWPA, DOE had proposed that a federal MRS facility be built at Clinch River, Tennessee, and also identified two alternative MRS sites in the state. But, bowing to political pressures from the Tennessee delegation, Congress, as part of the 1987 NWPA amendments, revoked the proposal to site a MRS facility in Tennessee. Congress also imposed further limitations on the DOE and MRS facilities, leading DOE to essentially abandon MRS siting.

In the absence of any federal repository or storage facility, a utility-owned Private Fuel Storage (PFS) consortium sought to build a private SNF storage facility on lands of the Skull Valley Band of Goshute Indians in Utah, with the capacity to store 40,000 metric tons of SNF, far more than would be permitted at a federal MRS facility.[16] The PFS facility was granted an NRC license in 2006, following a nine-year licensing process. Construction of the PFS facility, however, has been blocked by the Department of the Interior.[17] The Bureau of Indian Affairs refused to approve the tribe's lease of its land for the facility because of risk that the facility would become a de facto permanent repository, while the Bureau of Land Management also denied a right of way over federal lands for a railway line to the site. The future of the facility is currently in limbo.

G. Nevada's Reversal of Political Fortune and the Demise of the Yucca Mountain Repository

After characterizing the site, DOE recommended Yucca to Present Bush, who selected it for development of repository for HLW and SNF. In accordance with the NWPA, Nevada exercised its right to disapprove the repository, but this disapproval was overridden by a joint resolution of Congress. DOE developed and eventually submitted to NRC an application to license the Yucca repository, in conformity with environmental and safety standards including radioactivity exposure standards issued by EPA. Nevada opposed the repository by every means at its disposal, including litigations and efforts to halt or harass DOE's efforts to characterize the site. The election of President Obama, who had opposed Yucca during and even before the 2008 Nevada Democratic Primary, and the position of Democrat Harry Reid of Nevada as Senate Majority leader, caused a sudden turnaround in Nevada's political fortunes. The Obama Administration has terminated funding for Yucca and DOE has sought to withdraw its application to NRC for licensing the repository. However, the NRC Atomic Safety and Licensing Board recently ruled against DOE, holding that the application must go forward for decision by NRC. The Board's ruling will be reviewed by the Commission, the courts, and possibly Congress. Even if sustained, the licensing process itself would take years, followed by appeals, and even if a license is granted, Congress would have to fund construction. Thus, the possibility that Yucca might still be built is highly remote and would occur, if at all, only after long delays.

H. The Successful Development of WIPP

In contrast to the centralized, top-down NWPA strategy for siting a HLW/SNF repository, the WIPP TRU repository did not develop in accordance with any mandated blueprint, but instead as a result of an iterative, often halting, step-by-step process over twenty-five years involving DOE, the State of New Mexico, Congress, the federal courts, and local environmental advocacy groups. Through litigation and leveraging its representation in Congress, New Mexico ensured that its core interests were accommodated. An independent, federally funded technical review body, established and carried out with significant state involvement, promoted state and public confidence and acceptance of key decisions regarding the facility. At various times the disposal at the site of defense HLW, defense TRU, and civilian SNF was considered. Politics in Congress and New Mexico eventually determined that the facility would be restricted to defense TRU.

After DOE was forced to obtain explicit congressional authorization for the facility following a New Mexico court victory, Congress, in 1992, enacted the Waste Isolation Pilot Plant Land Withdrawal Act (WIPPLWA) to authorize operation of the facility and establish a regulatory framework for it. Congress directed EPA to issue site-specific radioactivity exposure standards for WIPP and determine whether the facility was suitable as a long-term disposal repository for TRU. Subsequently, New Mexico also gained and exercised authority under RCRA over shipments of TRU waste to the site,[18] which gave it additional leverage to ensure that its concerns were met. EPA certified WIPP in 1998, and the next year it received its first shipment of waste. EPA recertified WIPP in 2004, five years after opening. WIPP has received and deposited several thousand shipments of TRU wastes since that time without major controversy.

IV. The Current Dilemma and the Way Forward

Under existing law, as set forth in the NWPA, Yucca Mountain is the only candidate site for a permanent repository for SNF and HLW. Yet the Obama Administration has terminated its funding and has sought to withdraw its NRC

15. Carter, *supra* note 7, at 175.
16. NWPA limits a federal MRS to storing 10,000 metric tons of heavy metal before licensing of a federal repository and 15,000 metric tons thereafter. 42 U.S.C. §10168(d)(3)-(4).
17. Mark Holt, CRS Report for Congress: Civilian Nuclear Waste Disposal 13 (2007).
18. 42 U.S.C. §6901, ELR Stat. RCRA §1001, provides for federal EPA regulation of chemically hazardous wastes, and for delegation by EPA of such regulatory authority to states with approved regulatory programs. RCRA has been interpreted to grant EPA and delegated states authority to regulate "mixed wastes," including TRU, that are chemically hazardous as well as radioactive.

license application. There is no alternative in sight. Siting and developing a repository at another location will take decades. Neither a federal MRS facility nor a privately owned consolidated storage facility has been developed. Meanwhile, SNF continues to accumulate at reactor sites. Localities and states are growing restive at the prospect of indefinite at-reactor storage of SNF, especially at sites where reactors have shut down. The HLW stored at various DOE sites across the country also lacks a destination pathway. DOE will find it impossible to meet the commitments that it has made in agreements with states hosting these sites to ship the wastes out of state by specified deadlines.

What are the possible solutions to these orphan waste dilemmas? WIPP's mission might be enlarged to include some wastes other than TRU. Earlier studies of the WIPP site and facility indicated that it could well be suitable for disposal of SNF and/or HLW as well as the TRU it already receives. Congress would have to enact legislation to enlarge WIPP's mission. New Mexico could be expected to resist, and its concerns and interests would need to be accommodated. Alternatively, Yucca might possibly be revived and eventually built.

Notwithstanding these possibilities, the nation must move forward with a plan to establish at least one new deep geological repository as well as a strategy for dealing with SNF. Such a strategy should include one or more new public and/or private consolidated storage facilities for SNF that would, at a minimum, store SNF from shutdown reactors and possibly additional SNF as well, pending development of a permanent repository; the option of reprocessing SNF might be considered in the interim. What lessons can be drawn from past experience to develop a successful strategy and retrieve the bankruptcy of the NWPA?

A. Rethinking the Ethics of Nuclear Waste

The first step is to rethink the ethical principles embraced by the Carter IRG. It is not the case that the benefits of nuclear power and nuclear weapons have accrued only to past and current generations, and that our responsibilities to future generations require "in perpetuity" disposal of nuclear wastes as promptly as possible. At least a part of the national security and economic benefits of past uses of nuclear technology are embedded in the social and economic capital that future generations will inherit. Because carbon dioxide emissions reside in the atmosphere for centuries, the carbon emissions avoided by the use of nuclear power to date will benefit future generations for many years. Nor is it obvious that the interests of future generations are best served by burying current waste stockpiles as soon as possible. Our ability to evaluate repository sites and the technologies for containing wastes are likely to improve in the future. Moreover, nuclear fuel is a partially renewable resource. Burying this resource irretrievably will deny future generations the option to use it. While repositories can be built to permit retrieval of wastes, incorporating retrievability adds to expense and perhaps performance uncertainty. Moreover, once wastes are buried in a repository, it may be politically difficult to retrieve them even if retrieval is technically possible. Based on these considerations, a revised ethic is appropriate, along the following lines:

Our obligation is to give succeeding generations a real choice and the opportunity to shape their own decisions while at the same time not imposing a burden those future generations may not be able to manage.[19] This principle points to a step-by-step approach to dealing with nuclear waste, through an iterative process of learning and public deliberation, as opposed to an immediate decision on a final solution.[20] This does not mean that we should not start now to develop at least one new repository and one or more consolidated SNF storage facilities. But there should be no artificial deadlines or "final solutions" mandated at the outset.

B. Securing Informed Public Trust and Host Assent to New Waste Facilities

The lesson of U.S. experience, confirmed by that in some other nations, including Finland and Sweden, is that nuclear waste storage and disposal must ultimately be based on informed public assent, particularly that of host localities and states. Achieving assent will require a combination of technical competence; true engagement of host local and state stakeholders in risk assessment and management; partnering with states in repository siting, design, and operation planning and decisionmaking; and steps to meet host state and local safety concerns, including those relating to waste transportation and emergency preparedness. It will also be necessary to provide economic and other benefits to the host locality and state, such as investment in economic infrastructure that will support long-term growth, government services, educational and health benefits, and priority under federal programs. Successful siting and facility development will also require a step-by-step approach, one that is flexible, open, and responsive to state and local concerns and needs, rather than a system of unilateral decisions by the federal government that presents states and localities with a fair accompli. Washington must abandon the arrogant and dysfunctional top-down strategy embraced in both the 1982 NWPA and the 1987 NWPA amendments.

This conclusion has both pragmatic and ethical foundations. Notwithstanding the federal government's plenary legal power to build a new nuclear waste repository or storage facility on its own lands, experience shows that this power is counterbalanced by deep political and institutional safeguards of federalism that make it very difficult to impose such facilities against the determined opposition of host jurisdictions. As an ethical matter, such impositions are unfair. Host jurisdictions should not have to bear the burden of other

19. I am indebted to Tom Isaacs, Director of Policy and Planning, Lawrence Livermore National Laboratories, for this formulation.
20. Canada is currently developing such an approach to nuclear waste management. *See* Nuclear Waste Mgmt. Org., Moving Forward Together: Annual Report 2007 (for a discussion of the newly developed Canadian approach to nuclear waste management going forward).

jurisdictions' wastes unless they have had a fair opportunity to contest, influence, and ultimately accept a facility.

Future siting decisions will accordingly require federal collaboration with states and localities, open processes, ready public access to information, and public involvement in or opportunity for review of data gathering risk assessment, site evaluation, and facility design. It is only through such processes that informed assent is likely to be secured. The federal government, after considerable prodding, eventually and grudgingly followed this approach in developing the WIPP facility after New Mexico succeeded in repeatedly blocking unilateral decisions by DOE.[21]

Informed public assent requires strong institutional assurances of facility safety and environmental protection, including (as at WIPP) host state regulatory authority over wastes transferred to the facility. It also requires credible, independent technical and scientific oversight and review, with (as at WIPP) a state role in establishing the reviewing body. Gaining host trust and assent also has critical procedural elements. The process for making siting decisions must be transparent and accessible, and include procedures through which a potential state/local host is brought in at the early stages of the planning process and is able, in a timely manner, to voice its concerns and demands and resolve them with the federal government through discussion, deliberation, and negotiation. *Informed* public assent implies full and accurate information about characteristics of the wastes, the risks posed, the site, and the facility that the government proposes to develop, as well as related arrangements such as transportation; it also implies that host states and communities are given the resources to hire their own independent experts to evaluate claims made by the proponents and perform their own investigations and gather information on issues of importance to them. An open, step-by-step process for decisionmaking on new facilities is essential, not only for the reasons discussed above, but also to provide for meaningful state input and influence as a facility develops. The legal and institutional framework for facility siting, design, and construction including state involvement in decisionmaking must secure these requisites.

In addition, the economic interests and the past experience of potential host states and localities must be considered and accommodated. These variables go a long way to explain why WIPP ultimately succeeded in meeting the State's tough requirements and is open for business, whereas Yucca has been tied up in state-generated delaying tactics. Carlsbad and New Mexico were economically needy, and had a generally positive experience with federal nuclear activities. Nevada's experience was the opposite. Long-run benefits that take the form of economic development and jobs for local communities appear to be much more significant than cash transfers, although federal grants to New Mexico were also important. Reprocessing facilities and new types of reactors, as well as R&D installations to develop these technologies, are likely to offer long-run economic benefits, and could be coupled with a new repository or consolidated storage facility to help win host acceptance.

21. Host assent could take explicit form in an agreement between the federal government and a state/locality, as a memorandum of agreement under which the latter agrees to host the facility on specified terms. But it can also be manifested less formally, for example through de facto acceptance of a facility rather than active resistance to it, following a process of discussion and negotiation and concessions by federal authorities.

C. *Creating New Federal Waste Management and Siting Institutions and Financing Mechanisms*

The third step for dealing with nuclear wastes is to establish new federal institutional structures for nuclear waste management, siting, and regulation. DOE suffers from high turnover, erratic funding, internal stove piping and resource conflicts, a culture of secrecy, and erratic, politically directed congressional funding. The most fundamental difficulty with existing arrangements, however, may be that the task of siting new waste disposal and storage facilities (including facilities for LLW, as well as HLW and SNF) and the task of constructing and managing the new facilities, as well as managing existing waste facilities, are fundamentally different and call for different organizational skills and attributes. Accordingly, serious consideration should be given to taking both of these functions out of DOE and creating two new entities, one responsible for siting and the other for nuclear waste management. Congress, at the same time, needs to address the closely linked issues of developing new mechanisms to finance the development and operation of new and existing facilities, and the resolution of the government's liabilities for failing to take utility SNF beginning in 1998.

Nuclear waste management. Under the proposed reorganization, one new entity would be dedicated to managing nuclear waste. It would not site new storage facilities or repositories, but would be responsible for waste storage, treatment, and transportation; development and application of waste containers; construction and operation of interim consolidated storage facilities; and construction, operation, closure, and post-closure monitoring of a repository. The requisites for such an entity are a clearly defined mission, a business model of management, high-quality technically adept personnel, and assured long-term stable funding. There are several institutional forms that such an entity might take:

- A federal agency with a single head who reports to the President.
- A federal agency with a single head that reports to the Secretary of DOE but located outside DOE (on the model of the Bonneville Power Authority).
- A federal corporation owned by the federal government with a presidentially appointed board that selects a CEO to manage its operations, on the model of the TVA.
- A hybrid federal corporation owned in part by the federal government and in part by the nuclear utilities with a board selected in part by each.

A further option would be a private corporation owned by the nuclear electric utilities, regulated by the government. While this model has been adopted by some European countries, it is probably too radical a departure from the status quo to be politically acceptable in the U.S.

The advantage of a corporate form is that it would most fully realize the business model, and free the entity from federal personnel and procurement requirements, promoting flexibility and efficiency and enabling it to hire and retain highly qualified personnel.[22] Continuity of funding could be assured by making a nuclear generation fee payable directly to the entity, or establishing contractual arrangement for utility funding. Alternatively, funding by Congress could be accomplished through long-term appropriations, possibly including a revolving fund separate from the unified federal budget. A further advantage of a hybrid corporate form is that it could build on the commonality of interests in successful waste management on the part of the government and the utilities; the NWPA waste management liability scheme makes them adversaries. Such an entity could assume ownership of wastes once they left the site of a reactor or reprocessing facility. A hybrid federal corporation owned by the government and the nuclear utilities would represent a sensible compromise arrangement, and such a corporation might potentially engage in reprocessing as well as waste management. The federal or hybrid corporate form, however, has disadvantages, most notably lack of clear arrangements for accountability in its policies and finances.[23] The recent financial debacles of FannyMae and FreddyMac must be carefully considered in designing a new model for nuclear waste management. A corporate model could also make it difficult to coordinate waste management decisions with the functionally related decisions of existing federal agencies.

Siting. Siting of storage facilities and repositories calls for different institutional requisites. While technical competence is essential, the NWPA experience indicates that a purely technocratic model is too narrow. Successful development of new storage facilities or repositories will require considerable engagement with states and localities and a wide variety of constituencies, and a capacity for negotiation within those various stakeholders. This will require an institution that is more open, that can represent different viewpoints and stakeholder interests, and that can develop good political connections with Congress and the states. The multimember "independent" commission form may best suit these specifications. Such agencies have typically had closer ties with Congress (and, through Congress, to local interests) than agencies with single heads who report to the President. An office of waste negotiator should be included as a component within such a commission to take the lead in exploring and negotiating siting opportunities, building on experience gained under the now-expired provision of NWPA establishing the ONWN.

Financing. Congress should resolve the government's past and future liabilities through statutory arrangements that will at the same time provide a more secure system of financing for SNF management storage and disposal than was achieved under the NWPA Nuclear Waste Fund. The options include the following:

- Industry-financed storage and disposal through a corporation owned and operated by the utilities, with some government/public representation in its governance and financial commitments and financing arrangements by the industry participants. This is the model followed in Canada.
- A federal corporation with utility representation in its governance that would have authority to finance its operations by fees on nuclear electricity generation.
- Funding for a special-purpose government agency funded though dedicated revenues from nuclear electricity fees placed in an escrow account in the Treasury.
- Reclassification of revenues from the nuclear generation fee as offsetting collections and receipts. Under this system, expenditures for SNF management would not be subject to the overall federal spending budget cap, and the SNF program would not have to compete with other federal programs for limited resources.

Environmental regulation. Environmental health and safety (EHS) regulation of nuclear waste and storage facilities and repositories should, of course, be independent of management and siting. But it seems questionable to have two regulators—NRC and EPA—playing this role, as is currently the case. EPA's primary mission is pollution control, an orientation which is not well-suited for dealing with the problem of the EHS regulatory issues posed by nuclear waste management and disposal, which are based on complex geologic and engineering systems and stochastic risks of systems failures due to the interaction of multiple fault lines. Dealing with such risks, including those posed by nuclear reactors, is NRC's central mission. While environmentalists tend to distrust NRC, and institutional redundancy can guard against "capture" of regulatory agencies by the regulated industry, duplication of function creates the potential for conflict and muddles accountability. The preferred solution is to take the necessary steps to ensure the independence and ability of a single EHS regulator. At this juncture, however, EPA standard-setting and certification of repositories (as at WIPP) have come to be accepted as an integral part of the regulatory process for disposal of the most highly radioactive wastes, and accordingly may well need to be retained to win host trust and acceptance. For similar reasons, states' RCRA authority over the chemically toxic component of mixed wastes should be retained. States play an important role in regulating federal facilities, and the WIPP experience suggests that the

22. *See* A. Michael Froomkin, *Reinventing the Government Corporation*, 1995 U. Ill. L. Rev. 543 (1995) (discussing the advantages of the utilization of the corporate form in this context).
23. *Id*. at 560, 594-95, 607-08.

ability to exercise such authority may be essential to states' willingness to accept future nuclear waste facilities.

D. *Instituting a More Performance-Based, Hazard-Informed Approach to Waste Classification and Management*

A final step in rethinking nuclear waste law and policy is to phase in a more performance-based, hazard-informed approach to waste policy and its implementation. Various reports by NAS and government committees have recommended this step.[24] The International Atomic Energy Agency has developed a classification framework that reflects practice in a wide range of countries and provides a useful point of reference. The existing U.S. waste classification/regulation represents an amalgam of various provisions in statutes and regulations that has evolved in patchwork fashion over many years. The resulting classifications and their legal consequences do not always reflect relative risks or sensible waste management policies and priorities. Many waste classifications are based not on the wastes' radiological and other characteristics and the risks that they pose, but on the processes by which they are produced. Moreover, these different categories often include a variety of different kinds of wastes posing different levels and kinds of risks and requiring different approaches to treatment, storage, and disposal.

There are a range of opportunities to reclassify wastes to achieve a better fit between hazards on the one hand and regulatory requirements on the other. For example, certain components of reprocessing wastes now managed (at great cost) as HLW could be separated, solidified, and safely disposed of as LLW. Some high-volume types of LLW with very low radioactivity levels could appropriately be disposed of in landfills without the full extent of engineered controls now required. But other LLW pose significant hazards that require even more stringent controls than now exist.[25] Steps to build a more hazard-informed, performance-based waste classification scheme, which would point to more stringent regulation in some cases, and less stringent controls in others, should be incremental and should be accomplished through administrative procedures that will allow full opportunity for public participation and judicial review. The approach should take into account societal views of risk as well as scientific ones. Moving towards such a system of classification and regulation will not solve the most fundamental problems of nuclear waste in the United States, but it would make valuable contributions towards establishing a more rational system of nuclear waste regulation.

V. Conclusion

The failure of the NWPA and the ultimate success of WIPP indicate that our current orphan waste dilemmas must be solved through a patient, step-by-step approach, keeping options open to the extent feasible, learning from experience, and dealing with unforeseen developments through a strategy of adaptive management. Successful development of a new repository and of consolidated storage facilities must also be based on the informed assent of localities and states hosting waste storage and disposal facilities. This approach is radically different from the approach taken under the NWPA of establishing a detailed blueprint at the outset, pushing insistently forward with it heedless of mounting evidence of fundamental design flaws, and imposing facilities on unwilling states. Implementing the new approach will also require some basic legal and institutional changes to establish the necessary infrastructure for moving forward. The Blue Ribbon Commission should flesh out the elements of this strategy as well as the other recommendations in this article. Congress and the Administration should seize the opportunity to make a fresh start rather than tinkering with a broken system and strategy.

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24. *See generally* Nuclear Radiation Studies Board, Committee on Improving Practices of Regulating and Managing Low Activity Radioactive Waste, Improving the Regulation and Management of Low Activity Radioactive Waste (2006); Committee on Improving Practices for Regulating and Managing Low-Activity Radioactive Waste, Nuclear and Radiation Studies Board, Improving the Regulation and Management of Low-Activity Radioactive Wastes (NAS-NRC 2006); Allen Croff, *Risk-Informed Radioactive Waste Classification*, 91 Health Physics 449 (2006); B. John Garrick, *Contemporary Issues in Risk-Informed Decision Making on the Disposition of Radioactive Waste*, 91 Health Physics 430 (2006); Linsley Gordon, *International Standards Related to the Classification and Deregulation*, 91 Health Effects 470 (2006); Rob Rechard, *Historical Relationship Between Performance Assessment for Radioactive Waste Disposal and Other Types of Risk Assessment*, 19 Risk Analysis 763 (1999) (all discussing the possibility of the implementation of performance-based standards).
25. Nuclear Radiation Studies Board, *supra* note 24.

NRDC's Perspective on the Nuclear Waste Dilemma

by Thomas B. Cochran and Geoffrey H. Fettus

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Geoffrey H. Fettus joined NRDC in the fall of 2001, and as a senior attorney manages all aspects of NRDC's nuclear litigation in trial and appellate courts. Mr. Fettus has spent a significant portion of his time litigating nuclear waste and cleanup issues, including as lead counsel for NRDC and other environmental groups in the successful challenge to EPA's radiation protection standards for the proposed Yucca Mountain nuclear waste repository in the U.S. Court of Appeals for the D.C. Circuit in 2004.

While we agree with Richard B. Stewart, in his Article, *Solving the U.S. Nuclear Waste Dilemma*,[1] on some crucial issues—most notably that the national process for developing a geologic repository for disposal nuclear waste is currently a mess—we have a substantially different perspective on the reasons for the mess and the path forward.

I. Background on Geologic Repositories

As Stewart describes, efforts to geologically isolate high-level nuclear waste began more than forty years ago. The National Academy of Sciences in 1957 reported that a number of geologic disposal alternatives were possible, but indicated a preference for disposal in salt. In 1967, the Atomic Energy Commission (AEC) proposed Project Salt Vault, a plan to develop a geologic repository in the Carey salt mine at Lyons, Kansas. This plan was abandoned by the AEC in the early 1970s after the Kansas Geological Survey mounted a strong campaign against the site, pointing out that the area had been subjected to extensive exploratory drilling for oil and gas deposits, and noting that an adjacent salt mine could not account for the loss of a large volume of water used during solution mining of the salt.

In 1974, the Energy Research and Development Agency (ERDA), formed out of the AEC and the predecessor to the DOE, retreated from geological disposal by proposing a Retrievable Surface Storage Facility (RSSF) for interim storage of high-level waste while pursuing geologic disposal at a more leisurely pace. This idea was rejected by environmentalists and the Environmental Protection Agency (EPA) on the grounds that it would delay permanent disposal.

In the mid-1970s, it also became clear that commercial spent fuel reprocessing was uneconomical, environmentally unsound and represented a serious proliferation risk. President Gerald Ford refused to subsidize the completion of the Barnwell reprocessing plant, and then President Jimmy Carter pulled the plug on reprocessing. This gave a new urgency to finding a site suitable for geologic disposal of both spent fuel and high-level nuclear waste. In the late 1970s, President Carter initiated an Interagency Review Group (IRG) process to solve the nuclear waste problem in the United States once and for all. The IRG process involved numerous scientists, extensive public involvement, and a consultation and concurrence role for the states. The outcome of the IRG effort was a two-track program. The DOE was tasked with the responsibility for identifying the best repository site in the country, and EPA and the NRC were tasked with developing nuclear waste disposal criteria against which the selection and development of the final repository site would be judged.

II. The Nuclear Waste Policy Act

In 1982, Congress enacted the Nuclear Waste Policy Act (NWPA), which embodied in law the principal recommendations that grew out of the IRG process, including a commitment to geologic disposal, two repositories, and characterization of three sites before final selection of the first repository. The NWPA established a comprehensive program for the disposal of spent nuclear fuel and high-level radioactive waste (HLW) from the nation's commercial reactors and nuclear weapons complex.

At the time the NWPA was passed nearly thirty years ago, the federal government enjoyed fairly widespread support from within Congress, the environmental community, and

1. Richard B. Stewart, *U.S. Nuclear Waste Law and Policy: Fixing a Bankrupt System*, 17 N.Y.U. Envtl. L.J. 783 (2008). This comment is based on Stewart's original 2008 published article rather than the version that appears at 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10783 (Aug. 2010) and may refer to material that appears in the original article only.

state governments for the site selection and development process proposed by the IRG. Now, nearly three decades later, the federal government has little, if any, support from the State of Nevada, and virtually no public support from the environment and public health community for the Yucca Mountain project.

III. What Went Wrong?

We are in agreement with Stewart on a few issues, but our perspective—shared by much of the environmental community—is that the process of developing, licensing, and setting environmental and oversight standards for the proposed repository were repeatedly rigged or dramatically weakened to ensure the licensing of the proposed site rather than to provide safety for the length of time that the waste is dangerous. Here are two simple examples that Stewart failed to touch upon.

A. Site Selection

First, DOE and then Congress corrupted the site selection process. The original strategy contemplated DOE choosing the best four or five geologic media, then selecting a best candidate site in each media alternative, then narrowing the choices to the best three alternatives, and then picking a preferred site for the first of two repositories. Site selection guidelines were strongly criticized as DOE was accused of selecting sites that they had previously planned to pick and favoring sites on DOE reservations. In May 1986, DOE announced that it was abandoning a search for a second repository, and it had narrowed the candidate sites from nine to three, leaving in the mix the Hanford Reservation in Washington (in basalt), Deaf Smith Co., Texas (in bedded salt) and Yucca Mountain in Nevada (in unsaturated volcanic tuff).

Whatever equity remained in the site selection process was lost in 1987, when Congress, confronted with a potentially huge cost of characterizing three sites and managing the attendant controversy, amended the NWPA of 1982, directing DOE to abandon the two-repository strategy and to develop only the Yucca Mountain site. At the time, Yucca Mountain was DOE's preferred site. The abandonment of the NWPA site selection process led directly to the loss of support from the State of Nevada, diminished congressional support (except to ensure that the proposed Yucca site remained the sole site), and less meaningful public support for the Yucca Mountain project.

B. Radiation and Environmental Standards

The second track of the process was also corrupted. Section 121 of the NWPA of 1982 directs EPA to establish generally applicable standards to protect the general environment from offsite releases from radioactive materials in repositories, and directs the NRC to issue technical requirements and criteria. Unfortunately, it has been clear for years that the projected failures of the geologic isolation at Yucca Mountain are the determining factor in EPA's standards.

EPA repeatedly issued standards that were relaxed to ensure licensing the site rather than establishing adequately protective standards. EPA's original 1985 standards were vacated in part because it had failed to fulfill its separate duty under the Safe Drinking Water Act[2] to assure that underground sources of water will not be "endangered" by any underground injection.[3]

EPA's second attempt at setting standards that allow for a projected failure of geological isolation was again vacated, this time by the United States Court of Appeals for the D.C. Circuit. The D.C. Circuit found that EPA's Yucca Mountain rule (and the corresponding NRC standard), which ended its period of required compliance with the terms of those rules at 10,000 years was not "based upon or consistent with" the recommendations of the National Academy of Sciences (NAS) as required by the 1992 Energy Policy Act and therefore must be vacated.[4]

Giving significant deference to the agency, the D.C. Circuit did not vacate EPA's strangely configured compliance boundary for the Yucca Mountain site. The dramatically irregular line that represents the point of compliance has little precedent in the realm of environmental protection, and its shape is perhaps more reminiscent of gerrymandered political districts. Rather than promulgate protective groundwater standards, EPA pieced together a "controlled area" that both anticipates and allows for a plume of radioactive contamination that will spread several miles from the repository toward existing farming communities that depend solely on groundwater and perhaps through future communities closer to the site.

EPA's next proposed and revised rule, issued in 2005, retained the 15 millirem/year and groundwater standards for the first 10,000 years, but then establishes 350 millirem/year standard for the period after 10,000 years and does away with the groundwater standard entirely. Because of differences in the way the projected dose rates were to be calculated, the post-10,000 year standard was about 70 times less restrictive than the 15 millrem/year pre-10,000 year standard. This two-tiered standard failed to comply with the law and fails to protect public health, especially if the repository's engineered barriers were to fail earlier than DOE predicts. On October 15, 2008, EPA published the final version of its revised Yucca Mountain rule in the Federal Register.[5] The 2008 Yucca Mountain rule's two-tiered individual protection annual dose standard establishes an initial 15 millirem first-tier limit, but weakens that limit to 100 millirem in the period after 10,000 years, when EPA projects peak dose to occur. Peak dose could occur significantly earlier if engineered barriers fail earlier than DOE and EPA have projected.

The final status of EPA's most recent two-tiered rule is likely null and void given the current administration's cessa-

2. 42 U.S.C. §§300f to 300j-26, ELR Stat. SDWA §§1401-1465.
3. NRDC v. Environmental Protection Agency, 824 F.2d 1258, 18 ELR 20088 (1st Cir. 1987).
4. Nuclear Energy Institute, Inc. v. EPA, 373 F.3d 1251 (2004).
5. 2008 Yucca Mountain rule, 73 Fed. Reg. 61255-89.

tion of the proposed Yucca Mountain repository project. The State of Nevada had challenged EPA's 2008 Yucca Mountain rule once again, but the matter is unlikely to proceed as the administration has turned the focus of the next two years to the President's Commission on America's Nuclear Future.[6]

IV. Reprocessing: The Federal Government Should Not Encourage or Support Commercial Spent Fuel Reprocessing

While we share his belief that we are not under a current necessity to "solve" the nuclear waste problem instantly (improved hardened on-site storage is certainly adequate for the near future), reprocessing of commercial spent fuel, as it is practiced today in France, Japan, and Russia, could reduce the uranium and enrichment requirements by up to 25%, but at great economic cost and numerous disadvantages over continuing to rely on the once-through nuclear fuel cycle as practiced in the United States and most other countries with nuclear power plants. There would be increased releases from other areas of the fuel cycle and greater proliferation and safety risks. The trend in recent years has been for more countries to abandon reprocessing than to initiate reprocessing.

Relative to the existing open fuel cycle, the use of a closed or partially closed mixed-uranium and plutonium oxide (MOX) fuel cycle in thermal reactors has proven to be more costly and less safe. It leads to greater routine releases of radioactivity into the environment, greater worker exposures to radiation, larger inventories of nuclear waste that must be managed, and it doesn't appreciably reduce the geologic repository requirements for spent fuel or high-level nuclear waste.

Because reprocessing as it is practiced today does not appreciably reduce repository requirements, it is not an alternative to Yucca Mountain. Advanced reprocessing technologies, heavily promoted under the Bush Administration's Global Nuclear Energy Partnership (GNEP), are unlikely to significantly impact repository requirements. This is because the fast reactors required for efficient waste transmutation are likely to remain more costly and less reliable than conventional thermal reactors, and hence will not be commercially deployed in sufficient numbers to effect the desired reductions.

The GNEP vision of burning the long-lived actinides requires that some thirty to forty percent of all reactor capacity be supplied by fast reactors. In other words, for every hundred thermal reactors of the type used throughout the United States today, some forty to seventy-five new fast reactors of similar capacity would have to be built. The commercial use of large numbers of fast reactors for actinide burning is unlikely to occur because—to borrow observations made by U.S. Navy Admiral Hyman Rickover more than fifty years ago that remain true today—fast reactors have proven to be "expensive to build, complex to operate, susceptible to prolonged shutdown as a result of even minor malfunctions, and difficult and time-consuming to repair."

The development of fast reactors to breed plutonium failed in the United States, the United Kingdom, France, Germany, Italy, and Japan. We would argue it failed in the Soviet Union despite the fact that the Soviets operated two commercial-size fast breeder plants, BN-350 (now shut down in Kazakhstan) and BN-600 (still operational in Russia), because the Soviet Union and Russia never successfully closed the fuel cycle and thus never operated these plants using MOX fuel.

Moreover, the advanced reprocessing technologies are even more costly than the conventional PUREX method and produce even larger inventories of intermediate and low-level nuclear wastes. The closed fuel cycle technologies required by GNEP pose greater proliferation risks than the once-through fuel cycle. Even though GNEP's ambitious vision of deploying new reprocessing plants and fast reactors in large numbers will surely fail to materialize, the partnership's research program will encourage the development in non-weapon states of research facilities well suited for plutonium recovery, that is, small hot cells and even larger reprocessing centers, as well as the training of experts in plutonium chemistry and metallurgy, all of which pose grave proliferation risks. It is for this reason that we advocate terminating the GNEP research on advanced reprocessing technologies.

The Obama Administration does not support efforts to close the nuclear fuel cycle and introduce fast burner reactors in the United States in the near term. This leaves the question of what level of long-term DOE research funding is appropriate to explore advanced nuclear fuel recycling technologies.

We hold the view that even substantial research spending in this area is highly unlikely to lead to nuclear technology breakthroughs that actually meet the stated goals of the research—cost-effective and non-proliferative techniques for reprocessing, recycling, and transmuting plutonium-based fuels. And since the proliferation risks of this cooperative international research would be ongoing and tangible, we and many others in the nonproliferation community believe that shutting down the current U.S. plutonium recycle research effort, and any support it extends to foreign efforts, is the wisest course, at least until such time as the latent nuclear proliferation risk in the world is much better controlled than it is today.

Others, including Energy Secretary Steven Chu, appear to believe that some level of ongoing advanced fuel cycle research is appropriate and has some chance of yielding the desired nuclear technology breakthrough, if pursued for perhaps a decade or more. History has not been very kind to this view, but the plutonium fuel cycle community is a lot like the fusion energy community in this respect—hope springs eternal as long as federal research dollars are within reach.

So weighing these contrasting glass half-full and glass half-empty perspectives, one might conclude that some modest long-term research program, geared to narrowing the technical and cost uncertainties surrounding the toughest unresolved technical, economic, safeguards, and prolif-

6. *See* January 2010 Presidential Memorandum to the Secretary of Energy directing the establishment of the Presidential Commission, *available at* http://www.nuclear.energy.gov/BRC/pdfFiles/FR_NoticeofPresidentialMemorandumonBRC.pdf.

eration issues, would be an appropriate and prudent middle path to pursue with respect to closing the fuel cycle. We would emphasize that even more important than the particular choice of technology is a better understanding of the requirements for the international institutional setting in which a large-scale fast reactor roll-out would be attempted. This, more than the technology, is the long pole in the closed fuel cycle tent. If one is serious about wanting to minimize the risks of proliferation, one is more or less driven to consider some form of international ownership and control over nuclear fuel cycle facilities, and this is likely to prove just as demanding a task as the development of more "proliferation-resistant" strains of reprocessing. We also note that absent such an international structure for closely regulating the closed fuel cycle, we are unlikely ever to transition to a world free of nuclear weapons.

V. Conclusion

The legislative history of the NWPA of 1982 includes the following admonition:

> The Committee strongly recommends that the focus of the Federal waste management program remain, as it is today, on the development of facilities for disposal of high-level nuclear waste which do not rely on human monitoring and maintenance to keep the waste from entering the biosphere.

This wise legislative direction has been ignored over the past several years. A central problem with the process for developing a geologic repository, and especially Yucca Mountain, has been that the site conditions have driven the standard. We observed this years ago when EPA abandoned its collective dose standard when it appeared that Yucca Mountain could not meet it. We observed this in 2001 when DOE placed greater hope on engineered barriers instead of on the geology of the site. We observed this again in 2001 when EPA limited the period of compliance to 10,000 years and gerrymandered the area of site compliance to allow for a massive (and diluting) spread of radioactive contaminants. Whether we'll observe the same type of process with the Blue Ribbon Commission on America's Nuclear Future remains to be seen. It is essential that this not continue.

If we are ever to have a robust repository program that both follows the original intent of the NWPA and gains the trust of the American public, then the federal government, in both its executive and legislative incarnations, must cease efforts to weaken meaningful and protective health and environmental standards applicable to the program.

The NWPA and the Realities of Our Current Situation

by David R. Hill

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Richard B. Stewart's article, *U.S. Nuclear Waste Law and Policy: Fixing a Bankrupt System*,[1] provides a thoughtful discussion of some of the complex scientific, policy and legal issues involved with nuclear waste generation and disposal. It is packed with useful facts, information, and history, and just the recitation of the history and circumstances of nuclear waste disposal issues and decisions in a readable, understandable form makes a useful contribution.

Stewart argues that the current system of nuclear waste law and po licy, primarily as established by the Nuclear Waste Policy Act of 1982 and amendments to that Act (together, the NWPA)[2] is bankrupt. There are two ways of reading this thesis. The first is that the system is so broken and fraught with problems that it is essentially worthless, and therefore should be discarded (or "liquidated," to use bankruptcy terminology). The second is that while it may have significant problems and difficulties, the system is worth salvaging, perhaps with some elements put aside and others modified, but with many of the basic viable elements retained and moving forward (in bankruptcy terms, a "reorganization"). If Stewart means the former, then I strongly disagree; but if he means the latter, as I believe he does, then I agree with him.

This is not to say that I believe that the NWPA's approach and the process by which the decisions embodied in the NWPA were made represent the best possible approach, or perhaps even a particularly good one, were we only now starting to generate nuclear waste and develop a scheme for its disposal. But of course that is not our current situation. Much as it might be nice to sit quietly in our offices and libraries and think creatively for a few more decades about what to do with spent nuclear fuel (SNF) and high-level radioactive waste (HLW) without regard for the consequences of this delay, I believe that such a course of action would be extraordinarily expensive and complicated, with no prospect at present for producing any better results than those brought about by the NWPA.

I. Some Problems with the Current System

Regardless, as I will explain below, Stewart is correct about many of the points he makes in the article, some of which, although the article was written before the Obama Administration's recent attempts to abandon the Yucca Mountain licensing process,[3] serve to highlight the perilous, expensive, and I believe mistaken course being pursued by the current Administration with respect to the disposal of SNF and HLW.

I agree with Stewart that congressional short-circuiting in the 1980s of the process for selecting a nuclear waste disposal site in the United States may have helped give rise to strong opposition in Nevada and elsewhere to the selection of Yucca Mountain as the site for a nuclear waste repository. Americans often complain about the amount of time it takes to make decisions and take action in this country—witness the current hand-wringing over how fast the Chinese can move forward with building new renewable energy facilities while in many locations in the United States the construction of almost any new energy facility can be mired for years in the process of federal, state and local permitting, National Environmental Policy Act reviews, litigation, etc. But the American system involves a significant amount of permitting and review, stakeholder involvement, and approvals by different government agencies at various levels of government. The decades-long opposition to Yucca Mountain, even after Congress in 1987 designated it as the only site to be studied for a repository, demonstrates what can happen when a congressional (or judicial) desire for "action" overrides what the public has been told will be the process for making a decision. This is exacerbated because politicians of both parties often will play the "you have been wronged" card in an effort to convince the public that the other party has unfairly taken decisions from the public, short-circuited the right process, or otherwise committed process fouls. It is not hard to think of numerous examples of this phenomenon, including some in recent months.

1. Richard B. Stewart, *U.S. Nuclear Waste Law and Policy: Fixing a Bankrupt System*, 17 N.Y.U. Envtl. L.J. 783 (2008). This Comment is based on Stewart's original 2008 published article rather than the version that appears at 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10783 (Aug. 2010) and may refer to material that appears in the original article only.
2. Pub. L. No. 97-425, 96 Stat. 2201 (1982) (codified as amended at 42 U.S.C. §§10101-10270 (2009)).
3. *See supra* note 1.

I furthermore agree with Stewart that the multiplicity of federal and state regulators under the current NWPA system has created serious problems. Some would argue that this system of multiple regulators has put in place proper checks and balances—one regulator against another. But often this view may reflect more of a desire to see the development of Yucca Mountain, or perhaps any permanent nuclear waste disposal facility, slowed down or stopped altogether. A system of multiple regulators with competing (or perhaps even diametrically opposed) missions is more likely to result in decisional gridlock, or at least one of the required regulators saying "no" to a facility's development. When multiple regulators have responsibility for a single facility or set of decisions, we cannot discount the fact that each regulator comes to the process with its own set of viewpoints, desires, and objectives—and a desire to "add value" by bringing those viewpoints to bear on the facility at issue. Some would view that as a positive overall, and there certainly are times when review by multiple different regulators is necessary and appropriate. But I think there can be no doubt that the existence of multiple, overlapping regulators dealing with a single facility dramatically increases the cost and inefficiency of the overall process, and increases the likelihood that the facility at issue—whether an energy production facility or a nuclear waste repository—will never be built at all.

Stewart is also correct that if we are going to re-think what to do with nuclear waste, we must confront the ethical principle that it is the present generation's responsibility to find a permanent solution and disposal pathway for the nuclear waste and SNF we have produced. This principle of "intergenerational equity" is at the core of the NWPA focus on the establishment of a permanent repository for SNF and HLW. I sometimes hear people question why the United States is so tied in knots with respect to the disposal of nuclear waste and the siting of a repository, while the French do not seem to have any such difficulty. But this is based on a misunderstanding of the situation in France. The French, who are heavily reliant on nuclear power for the production of electricity in their country, are reprocessing their spent nuclear fuel to produce mixed oxide fuel, but they are also trying to develop a deep geological repository because they must dispose of the radioactive byproducts of that reprocessing. Despite a very well planned, multi-decade course of action, they have run into substantial local opposition to the siting of a permanent repository, and have not yet succeeded in siting one. In the meantime, just as in the United States, radioactive waste is stored in shorter-term storage facilities in France.

There obviously are very serious issues of intergenerational equity involved when a decision is made to leave to future generations the problem of managing and disposing of nuclear waste that we generate today. The United States, in the NWPA, decided to take care of its nuclear waste legacy by building a permanent repository, and I believe that was, and is, the most equitable and responsible course of action. But a reasonable case can be made for the alternative approach. It would be contrary to the law as it currently stands, and all who advocate for an approach that does not seek to provide for a permanent repository should be aware of the burden we are choosing to place on future generations, but it is worth discussing if we were to decide to scrap the current NWPA system and start over.

Finally, I strongly agree with Stewart's statement that "[i]f Yucca is abandoned, it will be extraordinarily difficult to site a new repository, and the public perception of failure will be reinforced."[4] It might be different if Yucca was abandoned in favor of a viable Plan B for the permanent disposal of nuclear waste—for example, if Congress repealed the NWPA and simultaneously authorized the construction of a repository in some other location. But abandonment of Yucca Mountain without a Plan B, and prior to the conclusion of the now-ongoing Nuclear Regulatory Commission (NRC) licensing process for Yucca Mountain, would make the siting of a repository elsewhere extremely difficult. Basically, it would teach that if you fight hard enough, and if you refuse to accept the will of Congress and of the majority long enough, you can eventually succeed in thwarting an effort that is in the common good of the country as judged by multiple Congresses and Presidents of the United States.

II. Costs of Abandoning the Current NWPA Approach

Stewart advocates a re-thinking of the process set forth in the NWPA for the disposal of SNF and HLW. He advocates doing so while proceeding with the licensing process for Yucca Mountain as currently envisioned by the NWPA. This is in contrast with the approach of the current Administration, which seeks to stop the Yucca Mountain licensing process at the NRC even though there is no other existing plan for the disposal of the waste that was destined for Yucca Mountain—or, for that matter, even a process for selecting and evaluating such a plan.[5] Thus, the Administration seeks to push the reset button without any particular knowledge of what or even if viable alternatives may exist.[6]

But leaving aside all of the discussion about whether or not it might be a good idea to think about alternatives to licensing Yucca Mountain—and I will briefly discuss some of those alternatives below—the first question ought to be, what course of action is legally required right now? There are strong legal arguments that unless Congress amends the NWPA and repeals the current obligations that the Act imposes on the U.S. Department of Energy (DOE) and the NRC, the licensing process for Yucca Mountain must proceed, and the Administration is without the legal authority to stop it.

In contrast with what may have been a congressional short-circuiting of the process for selecting sites to be studied

4. Stewart, *supra* note 1, at 821.
5. Dep't of Energy, FY 2011 Congressional Budget Request: Budget Highlights 9 (2010), *available at* http://www.mbe.doe.gov/budget/11budget/Content/FY2011Highlights.pdf.
6. Also, at this point there have been almost two years of intensive technical review by the NRC staff of the Yucca Mountain license application that DOE submitted in 2008. This review by more than 200 technical professionals at the NRC has, to my knowledge, exposed no scientific or technical showstoppers with the application or facts that would call for anything other than moving forward with the full consideration of the application.

for a waste repository, there can be no doubt that the NWPA itself sets out an elaborately detailed process for DOE to follow in evaluating the site, and for the Secretary of Energy, the President, the State of Nevada, Congress, and the NRC to follow if Yucca Mountain is to be ultimately approved for the construction of a nuclear waste repository. The NWPA addresses how the Secretary of Energy must make a recommendation, what the President must do with it if he approves of the recommendation, the actions that the State of Nevada may take if it disagrees with the actions of the President, and even the words that are to be used in the resolutions introduced in Congress if Congress wishes to "override" the objections of the State of Nevada to locating a nuclear waste repository at Yucca Mountain.[7]

All of these processes have been followed over the course of the last twenty years or so. This process resulted in the enactment in 2002 of Public Law 107-200, the entire text of which is as follows: "Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That there hereby is approved the site at Yucca Mountain, Nevada, for a repository, with respect to which a notice of disapproval was submitted by the Governor of the State of Nevada on April 8, 2002."[8] Rarely does Congress speak to a question with more clarity. In short, the NWPA was complied with, Yucca Mountain was designated by Act of Congress as the location of a repository for nuclear waste, DOE submitted a license application to the NRC, and the next step in the process is the now-ongoing NRC licensing process.

The NWPA requires that within ninety days of enactment of the resolution approving the Yucca Mountain site as the location for a repository, DOE must file a license application with the NRC for the Yucca Mountain facility.[9] Notably, the Act does not say that DOE "may" file an application, or that it "should" do so. Section 114(b) of the Act states DOE's obligation in unequivocal and mandatory terms: "If the President recommends to the Congress the Yucca Mountain site under subsection (a)"—which he did—"and the site designation is permitted to take effect under section 115"—which it was—then "the Secretary [of Energy] *shall* submit to the [NRC] an application for a construction authorization for a repository at such site not later than 90 days after the date on which the recommendation of the site designation is effective under such section and shall provide to the Governor and legislature of the State of Nevada a copy of such application."[10] It certainly is true that DOE did not manage to submit the application to the NRC within ninety days—rather, it took about six years for DOE to complete and submit to the NRC the seventeen-volume, approximately 8,600-page application after Congress approved Yucca Mountain as the site for the repository in 2002.[11] But once the application was submitted, the NRC took several months to review it, and then in September 2008 "docketed" it after finding it was substantially complete and ready for NRC action.[12] That started a clock under the NWPA pursuant to which the NRC has up to four years to review and issue a decision on the application.[13]

For reasons of its own, the Obama Administration has attempted to abandon the Yucca Mountain licensing process, and DOE has sought to "withdraw with prejudice" the application that the Department submitted in compliance with the NWPA in 2008.[14] The Administration has stated that it has sought to withdraw the application with prejudice because it believes the Yucca Mountain project is not a "workable option."[15] Others would say the Administration has taken this action for purely political reasons.

Regardless, there are strong arguments that there is no legal authority or basis for DOE seeking to withdraw the application. Recently, NRC's Atomic Safety and Licensing Board issued an order that came to that conclusion. In an order issued June 29, 2010, the Board said that the NWPA "does not permit the Secretary to withdraw the Application that the NWPA mandates the Secretary file. Specifically, the NWPA does not give the Secretary the discretion to substitute his policy for the one established by Congress in the NWPA that, at this point, mandates progress toward a merits decision by the Nuclear Regulatory Commission on the construction permit."[16]

Even if proceeding with the current licensing process was not compelled as a matter of law, there are compelling arguments that it is the best policy course. Abandonment of the NWPA and of the now-ongoing licensing process for Yucca Mountain would bring about consequences that have not been fully acknowledged and justified by those supporting abandonment of the process called for by the NWPA.

First of all, refusing to follow the process set forth in the NWPA and abandonment of the Yucca licensing process would not bring about just a few months or years of delay. If the experience with the NWPA and Yucca Mountain has taught us absolutely nothing else, it has demonstrated that resolving questions as to the disposal of SNF and HLW takes a very long time. It took approximately twenty years between the commencement of the process to evaluate and site a defense nuclear waste disposal facility—the Waste Isolation Pilot Plant (WIPP)—near Carlsbad, New Mexico, and that was even with strong local community support for the facility.[17] Even assuming that the successful WIPP timeline would be replicated for a Yucca Mountain replacement at another location, we are not yet even to the point at

7. 42 U.S.C. §§10132-35.
8. Act of July 23, 2002, Pub. L. No. 107-200, 116 Stat. 735 (codified at 42 U.S.C. §10135).
9. 42 U.S.C. §10134(b).
10. *Id.* (emphasis added).
11. U.S. Dep't of Energy's Yucca Mountain Repository License Application for Construction Authorization (June 3, 2008), *available at* http://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html.
12. Letter from Michael F. Weber, Dir., Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Comm'n, to Edward F. Sproat, Dir., Office of Civilian Radioactive Waste Mgmt., U.S. Dep't of Energy (Sept. 8, 2008), *available at* http://www.nrc.gov/waste/hlw-disposal/letter-to-doe.pdf.
13. 42 U.S.C. §10134(d).
14. U.S. Dep't of Energy's Motion to Withdraw, U.S. Dep't of Energy (High-Level Waste Repository), No. 63-001 (NRC Mar. 3, 2010).
15. *The President's 2010 Budget for Dep't of Energy: Hearing Before the S. Budget Comm.*, 111th Cong. (2009) (statement of Stephen Chu, Sec'y of Energy).
16. U.S. Dep't of Energy (High-Level Waste Repository), LBP-10-11, 71 NRC __, __ (slip op. at 3) (June 29, 2010).
17. Stewart, *supra* note 1, at 791-93.

which the twenty-year clock has started to run. No new site has been selected, and for that matter, there is not even any agreement on how a process would work for selecting a new site. In addition, an entirely new statutory framework would need to be enacted by Congress, implementing regulations would have to be issued by numerous federal agencies, and inevitably many of those regulations would be challenged in the courts. Given all of this, it is optimistic to think that a permanent repository at a new location could be opened much before 2050, if even by then.

Second, there are very significant financial implications—or to put it more bluntly, costs that will be borne by the American taxpayers—if the Yucca Mountain facility is not licensed, constructed and opened. Stewart states in his article that in the NWPA, Congress imposed a liability "hammer" on DOE if it did not start accepting, by January 31, 1998, SNF from the utilities that had generated it.[18] But really, of course, the "hammer" is on the American taxpayers, not DOE per se. The federal government—read that to mean American taxpayers—will have to pay billions of dollars to utilities for having breached the obligation imposed by law to begin picking up the utilities' SNF starting in 1998, and that will be true even if Yucca Mountain is licensed by the NRC and opens around the 2020 timeframe, as the application currently pending at the NRC anticipated. If the licensing process for Yucca is abandoned and the government's compliance with its obligations to accept SNF is delayed for additional years or decades, the federal government's damages liability will likely grow by billions of dollars. These damages are paid from the Justice Department's Judgment Fund, and not from funds appropriated to DOE. And of course, the American taxpayers are on the hook for paying the cost of Judgment Fund payments.

Third, even aside from the additional damages that will be incurred as noted above, it likely would cost tens of billions of dollars to site, characterize, study, analyze, license and construct a repository at a new location. And we currently have absolutely no idea whether at the end of that site selection and licensing process we would end up with a solution that is any better technically than Yucca Mountain, or whether the Administration that is in place at that time would decide that the alternative approach is any more "workable." This seems like quite an extravagant expenditure of money at any time, but particularly now given the very high federal government budget deficits.

Fourth, it is unclear at best as to whether anyone has seriously evaluated the engineering, scientific, and technical implications of delaying by several more decades the opening of a permanent repository for SNF and HLW. A number of nuclear generating plants in the United States began operating more than thirty years ago and have had SNF stored on site since that time. Other reactors were shut down more than a decade ago. If we are going to delay for an additional thirty or forty years (or more) the opening of a repository while we engage in a policy re-think, it seems that at the very least the public ought to know what additional technical complications with existing fuel might occur as a result.

Finally, I believe we ought to recognize that a legislative process happened. Congress made decisions. At some point, is it not time to put pencils down and take action? Moreover, these were not decisions made by a single Congress or by only one political party. In 1982, when the NWPA was enacted, there was a Republican president and the Republicans controlled the Senate, but the Democrats were firmly in control of the U.S. House of Representatives (holding a 244-191 majority). In 1987, when the amendments to the NWPA were enacted that "short-circuited" the site selection process, the decisions again were bi-partisan: A Republican was president, but Democrats controlled the Senate by a 55-45 majority, and also had a sizeable majority in the House, at 258-177. That margin is almost exactly the same majority as the Democrats have held in the U.S. House of Representatives in the 111th Congress in 2009-2010.

III. Are There Reasonable Alternatives to Yucca Mountain and the Current NWPA Process?

So it is clear that we have pursued the development of a facility at Yucca Mountain through various Administrations and Congresses, both Democratic and Republican, and we have spent massive amounts of money doing so. It is also clear that abandoning the process will cost the American taxpayers billions of dollars, and that proponents of abandoning Yucca Mountain have not presented a process for making repository location decisions, proposed actual sites for a repository, or explained and justified methods of dispositioning waste, that appear to be any better than our current path. But surely we have learned some things that will make our decision-making and siting processes better the next time, even if we cannot currently tell how that will be, right? I am not so sure.

I am skeptical about the value of another "blue ribbon commission" to re-think what we ought to do with nuclear waste and SNF. I suppose it is always possible that this time things will be different, but a lot of effort has already been expended in past decades about what to do with SNF and HLW in the United States. The consensus opinion both in the United States and internationally over the past six decades has consistently supported deep geologic repository disposal.

I also think it is a false expectation to believe that if we just get together and talk some more, people will eventually agree on something and everybody will go home happy. There is little precedent for results like that in the nuclear arena. And even if that happy state of affairs did come about, it is worth remembering that the State of Nevada itself passed a resolution in 1975 urging the federal government to choose Nevada for the storage and processing of nuclear materials.[19] Times change, as demonstrated most recently by the Obama Administration's effort to abandon a decades-long process and withdraw the Yucca Mountain license application that

18. Stewart, *supra* note 1, at 808.

19. A.J.R. 15, 1975 Sess. (Nev. 1975).

DOE submitted to the NRC less than two years before. We must be realistic, and appropriately skeptical, about our ability to arrive at a happy consensus where all can agree on a disposal pathway for SNF and HLW.

Reprocessing also may be a fine idea. The French do it, after all. And the Bush Administration promoted the Global Nuclear Energy Partnership, which had a reprocessing component.[20] It also is true that SNF from nuclear power plants still contains the vast majority of the energy content of the uranium fuel originally placed into the reactor.

But nuclear reprocessing plants and technologies are very expensive. A reprocessing plant likely would cost billions of dollars to build, and would end up producing fuel that would only be price competitive with fuel produced from natural uranium if the market price for natural uranium was around $150 or more.[21] The current price of uranium is around $40-50 a pound, so enough said about that.[22] If we do decide as a country that we want to reprocess SNF, reprocessing would have to be massively subsidized with public money in order for it to be even remotely economically viable. Further, to reduce our SNF inventories, we would need a significant amount of new reprocessing capacity. SNF is currently being generated in the United States at a rate of about 2,000 metric tons per year.[23] So to not only deal with that newly generated SNF but also begin to reduce the volume of SNF that already exists, we would need a very large volume of new reprocessing capability.

And even after reprocessing, nuclear waste remains that must be disposed of in a geologic repository. Therefore, reprocessing may reduce the volume of material that must be disposed of, but it does not eliminate that waste altogether. Moreover, many types of waste—such as contaminated fuel, spent fuel from the nation's nuclear submarines and aircraft carriers, the glass logs (or "vitrified" waste) into which some defense-origin liquid high-level waste has been converted, etc., cannot be reprocessed. All of that material must simply be disposed of in a geologic repository, and until it is, it will continue to sit where it currently does in states throughout the country. And the defense-related waste, of course, does not include the SNF from commercial reactors that currently is stored at 131 sites in thirty-nine states.[24] There is a reason that on July 6, 2010, so many members of Congress from both political parties sent a letter to Secretary of Energy Chu demanding that DOE stop dismantling the apparatus to license and build the Yucca Mountain repository, at least until legal questions about the Administration's authority to unilaterally stop the licensing and development process for Yucca Mountain are resolved.[25]

One final thought—the Yucca Mountain repository design provides for retrievability of the SNF and HLW that is placed there until the repository is closed—which probably would not occur until the year 2150 at the earliest. As a result, the design provides for safe storage of nuclear materials in the near term while allowing future generations to remove it and do something completely different with it if technology develops that allows it to be treated or disposed of in a way that society deems more desirable. This design therefore preserves options for a considerable period of time into the future, while at the same time safely disposes of the nuclear materials created by the present generation and mitigates the financial liabilities that in the meantime the federal government is incurring every day.

IV. Conclusion

In sum, I agree with Stewart that the process established by the NWPA is far from perfect. Perhaps a less prescriptive process would have been more desirable. But can we really lament the process fouls that led to the creation of the NWPA in the 1980s, and also lament the extensive public processes called for by that Act, which were followed over the course of the succeeding twenty or so years? I believe not. If we were starting right now to both create nuclear waste and decide what to do with it, there would be a variety of processes we might use to select disposition pathways, and there are a variety of possibilities for disposing of nuclear waste. But that is not the situation in which we find ourselves, and we may as well be honest with ourselves about that.

The inability to push forward with resolve on the process that we have been embarked on for almost three decades does indeed create public doubts. This is unfortunate because nuclear power has been, and continues to be, a critical part of our nation's energy portfolio, and reliably produces massive amounts of electricity with little or no emissions of greenhouse gases and other air pollutants. Yucca Mountain has been chosen by an Act of Congress as the site for the nation's permanent repository for SNF and HLW. It has been the subject of decades of study and debate. It is now properly the subject of a licensing proceeding before the NRC. If the Administration and Congress wish to abandon that process, they should do so only if they repeal the NWPA and by Act of Congress establish an alternative site for disposing of nuclear waste. The alternative should not be years of additional study while both SNF and billions of dollars in costs to American taxpayers pile up. Thinking about what we want to do with the next repository, after Yucca Mountain is built, is just fine, but deciding to perhaps improve on the process the next time around should not be viewed as a substitute for proceeding with the process established by law, and the development and licensing process at Yucca Mountain that has now been ongoing for more than twenty years.

20. Stewart, *supra* note 1, at 800-01.
21. Stewart, *supra* note 1, at 803 (citing Matthew Bunn et al., The Economics of Reprocessing vs. Direct Disposal of Spent Nuclear Fuel §4 (2003)).
22. *See* CME Group, UxC Uranium U308 Swap Futures, http://www.cmegroup.com/trading/metals/other/uranium_quotes_globex.html (last visited July 7, 2010).
23. U.S. Dep't of Energy, Report to the President and the Congress by the Secretary of Energy on the Need for a Second Repository 2 (2008) *available at* http://www.energy.gov/media/Second_Repository_Rpt_120908.pdf.
24. Stewart, *supra* note 1, at 787.
25. Letter from Members of Congress, to Secretary Stephen Chu, U.S. Dep't of Energy (July 6, 2010), *available at* http://murray.senate.gov/public/index.cfm?a=Files.Serve&File_id=f849572d-f3eb-44f2-931d-3a0129eb32d5.

NWPA Is Still a Viable Option for Solving the Nuclear Waste Dilemma

by Daniel T. Swanson

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In his article, *Solving the U.S. Nuclear Waste Dilemma*,[1] Richard B. Stewart analyzes the history of the failure of the U.S. to manage the recycling and disposal of spent nuclear fuel (SNF) and high-level radioactive waste (HLW) from the nuclear fuel cycle associated with the production of electricity. He then develops some insightful suggestions to rectify the problem, recognizing that our current government policy is not moving the country toward a viable solution for disposal of SNF and HLW.

Stewart is correct in concluding that the current arrangement of onsite storage of civilian nuclear waste provides a relatively safe near-term option. However, there are very real security considerations attendant to indefinite storage of waste at locations never selected or constructed to store waste, with the potential for terrorists to target well-known quantities of low-level radioactive waste (LLRW) and HLW at reactor sites. As politicians become complacent with the lack of serious security incidents resulting from their failure to take decisive action to find disposal solutions, it becomes easier for them to ignore this volatile issue.

One consequence of the failure to take responsibility for the disposal of SNF and HLW is its negative impact on the development of nuclear power. A certain portion of the population opposes any growth in nuclear power as long as there is no demonstrated disposal option for SNF and HLW. Taking responsibility for the waste with a permanent repository will advance our energy security by helping us to maintain diverse sources of energy supply with the elimination of one serious impediment—the absence of safe disposal of SNF—while increased nuclear power will reduce emissions of greenhouse gases. A repository will also advance our national security by helping to provide operational certainty to our nuclear Navy and by facilitating the decommissioning of nuclear weapons and the secure disposition of nuclear materials.[2]

Based on experience obtained in the search for viable sites for a SNF and HLW repository, I have a different perspective than Stewart as to whether the law that directed the process, the NWPA, was to blame for the failure to select a viable repository site. Rather than being a failure, the NWPA was very successful in creating a process that identified potentially acceptable sites. Considerable resources were devoted to screening and exploration using a variety of media across the country, with a number of sites being identified as very promising from a geological and political perspective. The U.S. Department of Energy (DOE) initially identified nine sites as being potentially acceptable. Nine Draft Environmental Assessments (EAs) supported that decision.[3] Several of the communities in proximity with the target sites welcomed the prospect of being host communities with the attendant benefits of jobs and government payments.[4] In accordance with the NWPA,[5] the list of nine was narrowed down to five locations representing three different rock media, for which DOE developed final environmental assessments.[6] Yet the technical process was thwarted by Congress in selecting the Nevada site and eliminating the four other sites without

1. Richard B. Stewart, *Solving the U.S. Nuclear Waste Dilemma*, 40 ELR (Envt'l L. & Pol'y Ann. Rev.) 10783 (Aug. 2010) (derived from Richard B. Stewart, *U.S. Nuclear Waste Law and Policy: Fixing a Bankrupt System*, 17 N.Y.U. Envt'l L.J. 783 (2008)).
2. Secretary Spencer Abraham, Recommendation by the Secretary of Energy Regarding the Suitability of the Yucca Mountain Site for a Repository Under the Nuclear Waste Policy Act of 1982 2, 31 (Feb. 2002).
3. Draft Environmental Assessments for Lavender and Davis Canyon Sites, Utah, Cypress Creek and Richton Dome sites, Miss., Deaf Smith and Swisher Counties, Texas, Vacherie Dome, La., and Yucca Mtn., Nev., and Hanford, United States Department of Energy, Office of Civilian Radioactive Waste Management 10-17 (1984).
4. *See, e.g.*, Environmental Assessment, Davis Canyon Site, United States Department of Energy Office of Civilian Radioactive Waste Management (1986); Environmental Assessment, Deaf Smith County Site, Texas, United States Department of Energy Office of Civilian Radioactive Waste Management (1984) (discussing a uniform lack of reluctance among communities to serve as host communities for such site in light of the possibility of federal funds and federal jobs).
5. 42 U.S.C. §10132(b).
6. Final Environmental Assessments for Davis Canyon, Deaf Smith County, Hanford, Richton Dome, and Yucca Mountain, United States Department of Energy Office of Civilian Radioactive Waste Management (1986).

allowing DOE to conduct the detailed characterization mandated by the NWPA.[7] That backfired years later when Senator Harry Reid gained a significant amount of influence and exerted it to effectively kill the Yucca Mountain site.[8]

One important legislative action was taken that, although not mentioned in the condensed article, is discussed in Stewart's earlier published article—the empowerment of the NRC to regulate the design and operation requirements of the repository.[9] An equally significant congressional action was to confer on the NRC licensing authority over the SNF repository site to be nominated by DOE.[10] This step not only added a significant regulatory safeguard by empowering the NRC, which has years of experience licensing and regulating facilities utilizing reactor fuel, but it served the extremely valuable function of boosting public confidence in the repository selection process through an independent regulator.

As another example of Congress intervening in the government's effort to develop a complete fuel cycle, I would add to Stewart's discussion of the Carter Administration's influence that Congress, at the urging of President Carter, removed funding for the Clinch River Breeder Reactor after it had successfully undergone the first stage of licensing by the NRC.[11] This initiative could have made a significant contribution to the U.S. nuclear energy program and its fuel cycle by developing the country's first demonstration liquid-metal fast breeder reactor, with its potential to reduce nuclear fuel costs for reactors.

Stewart addresses the nation's pressing need to arrive at a solution for disposing of SNF from power plants. He presents five proposals to successfully solve the nuclear waste issue, from changing our ethics of nuclear waste to creating new waste siting agencies.[12] Indeed, his premise for prompting new options for achieving the national objective of siting, licensing, and operating a SNF disposal repository is sound, if Congress and the President approved. He suggests, however, that the existing legislative path forward must be abandoned in favor of an entirely new scheme, including the creation of a new nuclear waste policy commission, new waste management and siting agencies, avoidance of regulatory duplication, and other strategies.[13] Taken together, these recommendations appear workable and manageable. The problem, as with any options involving the federal government in locating and regulating a repository, is that the potential exists for Congress and the President to intervene and scuttle the process as they did with the existing scheme, without allowing the selection and approval of a suitable geologic host for the repository.

Given the failure of our country's initial attempt, pursuant to the NWPA, to achieve an orderly, scientific, and defensible evaluation of potentially suitable sites for a repository without disruption by Congress and DOE, change certainly is necessary. The principal obstacle that prevented the NWPA process from identifying suitable repository sites, however, was political interference. The pressure for securing a solution beyond the current impasse should not lead us inexorably to abandon the current legislation and adopt a totally different approach to the repository siting and licensing process. The existing NWPA is a functional law, and it led the DOE Office of Civilian Radioactive Waste Management (OCRWM) and its contractors to identify locations that have the potential to be characterized as entirely acceptable waste repository sites. The NWPA demonstrated its effectiveness in guiding OCRWM to its objective of identifying nine potentially suitable sites, which were narrowed down to five sites representing three different rock media, all fully supported by final environmental assessments.[14] Absent political interference, the NWPA was on track to complete the process. Finally, over $13 billion was spent supporting the OCRWM in its data gathering and analysis of potential waste disposal sites.[15] Rather than waste that money with a totally new scheme, consideration should be given to building on the work performed to date. Only if that fails should we embark in a completely different direction.

What DOE and its contractors require is to be left alone by Congress to follow the requirements of the NWPA.
The potential for political interference would exist under either current law or an entirely new legislative scheme. Congress must take responsibility and not yield to individual states, such as Nevada, in arriving at a solution that will benefit the entire country—reenergizing the NWPA to arrive at the best disposal sites possible within the U.S. All that Congress should ask of OCRWM is that DOE and its contractors perform what is required of them under the NWPA, on schedule, and on budget, preparing defensible analyses.

Whatever option Congress selects for moving the SNF and HLW disposal program forward, it is critical to promptly resolve the logjam at the tail end of the nuclear fuel cycle, as there is an anticipated rise in interest in new plants generating SNF and HLW, which will add to the burden created by the existing generators. The NRC announced that since 2007, it has received twenty-one applications for approval to construct and operate thirty new nuclear generating facili-

7. 42 U.S.C. §10133(a).
8. Press conference by Senator Reid Announcing The Elimination of Funds for the Yucca Mountain Site, Feb. 1, 2010, http://reid.senate.gov/newsroom/020110_yucca.cfm (last visited June 28, 2010).
9. *See supra* note 1 and accompanying text.
10. 42 USC §5842(3).
11. *See, e.g.*, Report to the President on Federal Energy Research and Development for the Challenges of the Twenty-First Century, President's Committee of Advisors on Science and Technology Panel on Energy Research and Development, President's Committee of Advisors on Science and Technology Panel on Energy Research and Development 17, (Nov. 1997) (discussing President Carter's request to remove funding for the Clinch River Breeder Reactor).
12. *See* Stewart, *supra* note 1, at 10786-90.
13. *Id.* at ###.
14. *See supra* note 7 and accompanying text.
15. Analysis of the Total System Life Cycle Cost of the Civilian Radioactive Waste Management Program, Fiscal Year 2007, DOE/RW-0591, July 2008, at vi (value in 2007$).

ties.[16] With new technology being developed to enhance the value of nuclear power plants, the demand will only increase. Examples include high-temperature, gas-cooled nuclear plants that offer the potential to cogenerate steam for electricity production, and also heat for an unlimited number of options, including desalinization, clean coal processing, hydrogen production, enhanced oil recovery, and numerous other uses benefiting such plants as refineries, coal conversion, chemicals, and fertilizers.[17]

I agree with Stewart that the Obama Administration and Congress should seize the opportunity to take decisive action to move the repository program forward.

16. New Reactors, United States Nuclear Regulatory Commission, http://www.nrc.gov/reactors/new-reactors.html (last visited June 28, 2010).
17. Next Generation Nuclear Plant Licensing Strategy, A Report to Congress, United States Department of Energy 4 (Aug. 2008).

ARTICLE

Rethinking the ESA to Reflect Human Dominion Over Nature

by Katrina Miriam Wyman

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My basic critique of the Endangered Species Act (the ESA)[1] is that it is built on an untenable premise that there is something natural—whether called species, ecosystems, or biodiversity—out there that we can save from humanity's reach. The Act's problems ultimately are rooted in a denial of the extent of human domination of nature and a failure to recognize our limited ability to halt and reverse the decline of species, ecosystems, and biodiversity given our pervasive impact on the planet. The ESA's mixed track record in helping species, the overburdened listing process, the poor targeting of the limited public funding for species recovery, and the debate about how much we are spending on species all reflect the triumph of human interests over the interests of species. The central contemporary challenge in protecting biodiversity is recognizing the vast scale of human impacts and the consequent need to prioritize our protection efforts given limited resources.

Today, policy-oriented scientists and legal academics who acknowledge our impact on the earth are discussing two main approaches for managing biodiversity: the ecosystem services paradigm and the biological hotspots paradigm.[2] Both of these approaches offer ways of deciding which aspects of nature to protect, given the pervasiveness of human impacts on the earth and the limited funds available to safeguard biodiversity.

The first of these two strategies for protecting biodiversity, the ecosystem services paradigm, characterizes biodiversity as an ecosystem service whose value to humans should be recognized. This could be done by assigning biodiversity a value in policymaking and by having governments and private actors buy and sell rights to biodiversity protection through instruments such as conservation easements and ongoing payments for conservation.[3] In 2005, EPA took a step toward better incorporating the value of ecosystem services such as biodiversity into policymaking. It created a Science Advisory Board panel to examine how the agency can improve its valuation of ecosystem services in cost-benefit analyses.[4] Some efforts also already have been made in the U.S. to pay for biodiversity protection.[5] I am skeptical that recognizing biodiversity as a valuable service, pricing it in policymaking, and buying and selling it through government subsidies and private payments will be enough to deal with the large-scale challenge that human dominion of the earth represents for

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1. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.
2. These two paradigms are distinguished and discussed in Peter Kareiva & Michelle Marvier, *Conservation for the People*, Sci. Am., Oct. 2007, at 50, 56.
3. Proponents of protecting biodiversity by recognizing it as an ecosystem service include Peter Kareiva et al., *Domesticated Nature: Shaping Landscapes and Ecosystems for Human Welfare*, 316 Science 1866 (2007); Kareiva & Marvier, *supra* note 2. In addition to biodiversity, some of the most commonly discussed ecosystem services include air and water purification, flood mitigation, soil fertility, and pollination. For definitions and lists of ecosystem services, *see, e.g.*, J.B. Ruhl et al., The Law and Policy of Ecosystem Services 6-7, 23-26 (2007); James Salzman, *Creating Markets for Ecosystem Services: Notes From the Field*, 80 N.Y.U. L. Rev. 870, 872 (2005).
4. On the panel, *see* U.S. Environmental Protection Agency, Science Advisory Board, Committee on Valuing the Protection of Ecological Systems and Services (2008), http://yosemite.epa.gov/sab/sabpeople.nsf/WebCommittees/BOARD (last visited Sept. 16, 2008); *see also* Salzman, *supra* note 3, at 907 n.164 (speculating that EPA created the Committee "to help the agency counter demands from the Office of Management and Budget that it justify its regulations through cost-benefit analysis").

   Stanford Law School professor Buzz Thompson chairs the panel. U.S. Envtl. Prot. Agency, Science Advisory Board, Committee on Valuing the Protection of Ecological Systems and Services, Biosketches (2008), http://yosemite.epa.gov/sab/SABPEOPLE.NSF/WebPeople/Thompson,%20Jr.Barton%20H.%20(Buzz)?OpenDocument (last visited Sept. 16, 2008).
5. For example, the Conservation Reserve Program (CRP) has been made somewhat environmentally sensitive. *See, e.g.*, Defenders of Wildlife, Incentives for Biodiversity Conservation: An Ecological and Economic Assessment 57 (2006) ("The Conservation Reserve Program is the largest federal resource conservation program in terms of the number of participants and program expenditures."); Ruhl et al., *supra* note 3, at 192 ("Over its twenty year history, in rural America, the CRP has emerged as the primary vehicle for providing a range of ecosystem services related to surface water and groundwater quality, wildlife habitat, recreation, carbon sequestration, and flood mitigation, among others."); Salzman, *supra* note 3, at 892 (describing "the Conservation Reserve Program" as "one of the largest ecosystem service payment schemes in the world").

species. To be sure, I agree that we should be doing more to value the benefits of protecting species and to take into account these benefits in making policy decisions that affect biodiversity. We also should aim to pay landowners more often when they can help protect species either through taxpayer-funded conservation payments or private transactions funded by environmental non-governmental organizations (ENGOs) and other actors. But simply approaching biodiversity as an ecosystem service, and valuing as well as buying and selling it, will not deal with the fact that protecting biodiversity in the early twenty-first century requires making choices among species given the pervasive threats they face due to human activities.[6] Valuing biodiversity and paying for it are tools for protecting the species we have chosen to protect, not ways of making now necessary choices about which species we want to protect. While valuable, the new emphasis on ecosystem services is not sufficient to address our current challenges.

The second strategy that some scientists and others have recommended for protecting biodiversity in the late twentieth and early twenty-first centuries squarely addresses the need to prioritize the protection of some biodiversity if we are to meaningfully protect much of it. This "biological hotspot" strategy starts by assuming that we need to identify priorities for species conservation because "[t]he number of species threatened with extinction far outstrips available conservation resources, and the situation looks set to become rapidly worse."[7] In one of the early articles advocating prioritizing conservation in biological hotspots, Myers et al. identified 25 hotspots around the world "featuring exceptional concentrations of endemic species and experiencing exceptional loss of habitat."[8] In total these hotspots contained "44% of all plant species world-wide" and 35% of vertebrates.[9] Myers et al. emphasized that protecting these 25 hotspots, which represent a mere "1.4% of the Earth's land surface,"[10] would be a cost-effective way of protecting a lot of biodiversity. Subsequently, NGOs such as Conservation International adopted the hotspot strategy to prioritize their conservation work.[11]

From a global perspective, the U.S. is not a major hotspot overall. Under the Myers et al. definition of a hotspot, the U.S. has only two hotspots: the California Floristic Province and Polynesia/Micronesia (which includes parts of Hawaii). Subsequent analyses using different criteria for defining a hotspot have suggested that there are four biological hotspots in the United States (Hawaii, southern California, southeastern coastal areas in Florida and Georgia, and southern Appalachia)[12] or perhaps twelve.[13] The pattern of listings of endangered and threatened species in the U.S. also indicates that imperiled species are heavily concentrated in a small number of areas in the country. Almost 50 percent of listed species living in the U.S. occur in Hawaii (25 percent of listed species in U.S.) and California (23 percent).[14] "[S]ome 72 percent [of listed species] occur in just six states: California, Hawaii, Florida, Alabama, Tennessee, and Texas."[15] Under the hotspot approach, the geographic concentration of imperiled biodiversity would influence where resources are allocated.

The hotspot approach obviously has pitfalls. While it may maximize the overall number of species that are protected, it will not protect some species that humans care deeply about, and as a result it may reduce public support for biodiversity protection. Taken to an extreme, the hotspot approach could lead us to focus on protecting biodiversity in only four to six U.S. states, and to ignore the fact that significant numbers of species are imperiled in many other states.[16] But the hotspot approach does have the advantage of helping to identify priorities for conservation policy, something that is necessary in an era of pervasive threats to biodiversity. Below I suggest how we might reform the ESA and other policy frameworks to enable us to better target biodiversity protection without rigidly limiting ourselves to protecting species only if they are located in hotspots.

I. Continue to List Species but Decouple Listing and Permanent Protections

I recommend that we continue to list imperiled species much as we do now under the ESA based on the threats that they face and in response to petitions from outside persons as well as internal U.S. Fish & Wildlife Service (FWS) recommendations.[17] To be sure, there are problems with the existing

6. It is important to recognize the practical difficulties of monetizing many of the benefits that we derive from the continued existence of species. *See, e.g.*, Frank Ackerman & Lisa Heinzerling, Priceless: On Knowing the Price of Everything and the Value of Nothing 153-78 (2004) (emphasizing the limits of contingent valuation of nature); Lisa Heinzerling, *Why Care About the Polar Bear? Economic Analysis of Natural Resources Law and Policy*, *in* The Evolution of Natural Resource Law and Policy 15, 15-26 (forthcoming 2008), *available at* http://ssrn.com/AbstractID=1026288. Also, there are many obstacles to establishing markets and payment programs for ecosystem services such as biodiversity protection, including delineating the services to be protected and assigning property rights that could be traded. *See, e.g.*, Salzman, *supra* note 3.
7. Norman Myers et al., *Biodiversity Hotspots for Conservation Priorities*, 403 Nature 853, 853 (2000).
8. *Id.*
9. *Id.* at 855.
10. *Id.*
11. *See* Conservation International, Annual Report 2006 (2006), *available at* http://www.conservation.org/Documents/pub_annualReport_06.pdf.
12. *See, e.g.*, A.P. Dobson et al., *Geographic Distribution of Endangered Species in the United States*, 275 Science 550, 551 (1997); Jon Paul Rodriguez et al., *Where are Endangered Species Found in the United States?*, 14 Endangered Species Update 1 (2007), *available at* http://www.umich.edu/~esupdate/library/97.03-04/rodriguez.html.
13. Curtis H. Flather et al., *Threatened and Endangered Species Geography*, 48 BioScience 365, 367 (1998).
14. U.S. Fish and Wildlife Service, USFWS Threatened and Endangered Species System, How many species are listed in each state (based on published population data)?—08/26/2008, http://ecos.fws.gov/tess_public/StateListing.do?state=all (last visited Sept. 16, 2008).
15. J. Michael Scott et al., *By the Numbers*, *in* 1 The Endangered Species Act at Thirty: Renewing the Conservation Promise 16, 20 (Dale D. Goble et al. eds., 2006).
16. According to NatureServe, "in one out of every four states, more than ten percent of native species are at risk." NatureServe, States of the Union: Ranking America's Biodiversity 2 (2002), *available at* http://www.natureserve.org/Reports/stateofunions.pdf (data indicate that four states have "exceptional levels of biodiversity" and that "in one out of every four states, more than ten percent of native species are at risk").
17. Currently, the ESA requires the Secretaries of the Interior and Commerce to maintain lists of endangered and threatened species. 16 U.S.C §1533(a)-(c). Housed in the Commerce Department, the National Marine Fisheries Service

threat-based criteria in the Act,[18] and the statutory definitions of species,[19] endangered,[20] and threatened[21] that the FWS applies in making listing determinations. For example, the Act provides no clear guidance about when a species is endangered or threatened.[22] Nonetheless, the existing statutory parameters for listing are worth retaining because we have over thirty years of administrative and judicial experience applying them, and it is unclear that we could come up with better parameters now.

Under the current statute, once a decision is made to list a species, a series of protections automatically kick in on behalf of that species.[23] While we should still list species as we do now, I recommend decoupling the decision to list a species from decisions about how to protect the species. This decoupling would allow us to develop protections tailored to the needs of each species and its circumstances.

To elaborate, listing should no longer trigger the seemingly permanent one-size-fits all consequences that it does now in the form of the §7 no-jeopardy provision, the §9 prohibition on takings, and the requirements to designate critical habitat and prepare a recovery plan. Instead, once a species is listed, it should benefit from a series of protections for a temporary period of time until the FWS identifies the measures that would most cost-effectively protect the species.[24] Like a preliminary injunction, these temporary protections would safeguard the status quo for a species and possibly begin to put it on the path toward recovery, depending on how extensive those protections were. For administrative simplicity, all species would receive the same temporary protections pending the completion of the FWS' review of the measures needed to cost-effectively protect the species. The scope of these protections could be the subject of negotiations among interests groups in the reauthorization of the ESA. Potentially, the protections could include modified versions of the safeguards that currently kick in automatically upon listing, such as §§7 and 9.

My hope is that requiring the FWS to identify the most cost-effective ways of protecting a species in the long-term, while the species is temporarily safeguarded, could allow the FWS to develop protections that are tailored to each species' needs and circumstances. Tailored protection might in turn improve the odds of species recovery. In addition, the approach I recommend might reduce the contentiousness of the listing decision because listing would no longer trigger a series of seemingly permanent one-size-fits-all protections.[25] Reducing the consequences of listing might reduce the incentive to litigate the FWS' listing determinations. With less litigation, the FWS might be able to evaluate many more species for listing. It is possible, though, that requiring the FWS to design cost-effective protections for each species after listing also could open up a new burdensome front for litigation. For example, in addition to, or instead of, litigating listing determinations, groups could challenge the timeliness and adequacy of the FWS' cost-effectiveness analyses.

II. Identify and Implement the Most Cost-Effective Protections for Species

Under my proposal, as discussed above, the listing of a species would trigger a legal obligation on the FWS to determine the measures that would most cost-effectively protect the species, and then to promulgate any regulations necessary to implement these cost-effective protections. The FWS would be required to identify these cost-effective protections within a legislated timeframe that could be used to force the agency to act. While the FWS undertook its review, the interim measures mentioned above would remain in place to avoid a situation where a species was listed but people were free to reduce its population and its habitat to forestall further protections.

I elaborate on four aspects of this proposed obligation on the FWS to identify cost-effective protections. The first is the purpose of the exercise: identifying measures to protect the

(NMFS), also called the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), is responsible for marine and anadromous fisheries under the Act. NMFS is responsible for only 67 species, a much smaller number of species than the FWS. As a result I refer throughout to FWS and the Secretary of the Interior as responsible for the ESA. NOAA Fisheries, Office of Protected Resources, Endangered Species Act, http://www.nmfs.noaa.gov/pr/laws/esa/ (last visited Sept. 16, 2008); *see also* Paul R. Armsworth et al., *Marine Species*, *in* 1 The Endangered Species Act at Thirty, *supra* note 15, at 36.

18. Section 4(a) indicates that a population should be listed if it is "an endangered species or a threatened species because of any of the following factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence." *Id.* §1533(b) (2000). Section 1533(b) allows the FWS to not list a population regardless of the threats that it faces if the FWS determines that another domestic or foreign jurisdiction is doing enough to help the population. *See also* Policy for Evaluation of Conservation Efforts When Making Listing Decisions, 68 Fed. Reg. 15, 100 (Mar. 28, 2003).
19. Under the ESA, *species* "includes any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature." 16 U.S.C. §1532(16).
20. An *endangered* species is defined as "any species which is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. §1532(6).
21. A *threatened* species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. §1532(20).
22. Holly Doremus, *Science Plays Defense: Natural Resource Management in the Bush Administration*, 32 Ecology L.Q. 249, 267-74 (2005); William Burnham et al., *Hands-On Restoration*, *in* 1 The Endangered Species Act at Thirty, *supra* note 15, at 237, 244 (recommending that the ESA be amended to include "objective definitions for 'threatened' and 'endangered' that incorporate specific criteria" and criticizing "threatened" especially as "too vague as presently defined"); Scott et al., *supra* note 15, at 21 (noting that ESA "lacks explicit criteria for determining population thresholds (individuals and populations), risk of extinction, and demographic trends").
23. First, the U.S. Fish & Wildlife Service (the FWS or the Service) must designate critical habitat for the species upon listing. 16 U.S.C. §1533(a)(3)(A). Second, §7(a)(2) requires that federal agencies consult with the FWS to "insure that any action authorized, funded, or carried out . . . is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of" the critical habitat of a listed species. *Id.* §1536(a)(2). Third, §9(a)(1)(B) prohibits public and private actors from taking endangered fish and wildlife, including taking the species' habitat. *Id.* §1538(a)(1)(B). Section 1533(d) allows the FWS to establish prohibitions on taking threatened species. *Id.* §1533(d). Fourth, and more proactively, the ESA requires the FWS **to develop and implement recovery plans to protect endan**gered and threatened species. *Id.* §1533(f)

24. *See infra* Part B.
25. On the contentiousness of the listings under the current Act, please refer to my original article, Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion Over Nature*, 17 N.Y.U. Envtl. L.J. 490, 496-98 (2008).

listed species. The ESA currently sets a high but vague goal in relation to listed species, namely recovering their populations to allow them to live without the Act's protections.[26] But in practice few listed species have been delisted, and the most frequent beneficial consequence of listing a species has been stabilizing or slightly increasing its population.[27] Our experience under the Act and the pervasive threats to species today raise a fundamental question about whether we still should be aiming to recover listed species or whether it would be preferable to set a more realistic and precise, but less inspiring, objective. This could be something like making it unlikely that the species would become extinct over three human generations,[28] or reducing the risk of extinction to a certain percentage over a 100-year time period.[29] While I do not have a view about what the objective should be, it likely would be necessary to define a more precise goal for listed species than is included in the current Act to implement a cost-effectiveness test. To identify the most cost-effective ways of protecting a species, the FWS likely would need a more straightforward sense of what it aims to do in protecting the species.

A second issue is what type of measures the FWS should consider in trying to identify the most cost-effective ways of protecting a listed species. One of the advantages of decoupling the listing of a species from decisions about how it should be protected is that there would be greater room for developing creative measures tailored to species' needs and circumstances. In this spirit, the FWS should consider a wide range of measures in ascertaining which would most cost-effectively protect the species. These could include "the old standbys" such as designating critical habitat, prohibiting taking species as under §9, and imposing special obligations on federal agencies as under the current §7. In addition, other more flexible and market-based measures used over the past several decades to protect species should be canvassed. These include buying land, conservation payments to state and local governments and private landowners, conservation easements,[30] conservation banking,[31] recovery credit systems,[32] recovery and habitat conservation plans, and fees for converting the habitat of endangered species.[33] Furthermore, it would be natural to analyze measures commonly part of today's recovery plans since the FWS' effort to identify the most cost-effective ways of protecting a species would supplant the current recovery planning process.

A third point worth clarifying is the meaning of the cost-effectiveness standard that the FWS would apply in identifying the measures that should be undertaken on behalf of the listed species. The point of requiring the cost-effectiveness analysis is to structure the decisionmaking process, not to limit the FWS to choosing only the package of protections that it predicts will be the cheapest way of protecting a species measured in dollar terms. I am suggesting that in determining which measures should be implemented, the FWS should choose those that will most cheaply protect the species, whether protection is defined as it is under the current Act as recovering the species to the point that it can be delisted or as something else.[34] However, the FWS should take a broad view of what counts as a cost in determining the costs of the various possible measures, and in selecting those measures that will protect the species at least cost. A measure's costs should include those that are easily monetizable, such as the cost of buying land if land acquisition is under consideration. In addition, harder to monetize costs such as a measure's ethical, political, and distributional costs should be analyzed. The co-costs of protective measures also should be counted. For example, if a protective measure would harm other species or reduce the availability of valuable ecosystem services, such as water purification, then these harms should be included among the measure's costs. A more structured decisionmaking process should make the trade-offs inherent in species recovery more transparent and allow policymakers to be held accountable for these trade-offs.

Fourth, the FWS should follow a procedure that makes its proposed package of cost-effective protective measures available for public comment before the package is finalized. Upon finalizing the package, the FWS should prescribe any regulations required to implement the package, such as regu-

26. The stated purposes of the ESA include providing "a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. §1531(b). Under the Act, "[t]he terms 'conserve,' 'conserving,' and 'conservation' mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." 16 U.S.C. §1532(3).
27. *See* Wyman, *supra* note 25, at 494-95.
28. This possible definition of recovery was discussed by participants in the ESA working group organized by the Keystone Center. The Keystone Center, The Keystone Working Group on Endangered Species Act Habitat Issues: Final Report 31 (2006) [hereinafter Keystone Center].
29. This is another possible definition of recovery that the Keystone Group discussed. *Id.* at 38.
30. *See, e.g.*, Matt Weiser, *Guardians of the Range: A Conservation Group That Aims to Protect 13 Million Acres Is Doing the Unthinkable: Getting Ranchers and Environmentalists to Work Together*, Sacramento Bee, May 8, 2007, at A1 (discussing efforts of ranchers and environmentalists to protect range land from development, for example through sale and purchase of development rights).
31. *See* Guidance for the Establishment, Use, and Operation of Conservation Banks, 68 Fed. Reg. 24753 (May 8, 2003). For a balanced account of the potential benefits and risks of conservation banking and a description of its current use to protect species, see Jessica Fox et al., *Conservation Banking*, *in* 2 The Endangered Species Act at Thirty: Conserving Biodiversity in Human-Dominated Landscapes 49, 228 (J. Michael Scott et al. eds., 2006).
32. *See* Endangered and Threatened Wildlife and Plants; Notice of Availability for Draft Recovery Crediting Guidance, 72 Fed. Reg. 62258 (Nov. 2, 2007) (proposing recovery crediting system analogous to conservation banking that would allow federal agencies to meet conservation objectives on non-federal lands and identifying program at Fort Hood Military Reservation as the model for the proposal).
33. *See, e.g.*, Thomas A. Scott et al., *Land Use Planning*, *in* 2 The Endangered Species Act at Thirty, *supra* note 31, at 206, 213 (referring to a fee developers paid for each housing unit under the Stephens' Kangaroo Rat HCP); *id.* at 214 (describing mitigation fee developers pay to offset interference with endangered species habitat under Western Riverside County Multi-Species HCP); Barton H. Thompson Jr., *Managing the Working Landscape*, *in* 1 The Endangered Species Act at Thirty, *supra* note 15, at 108 (referring to impact fee in expedited Balcones Canyonlands program); *id.* at 109 (referring to fee for destroying habitat of Houston toad in Texas); *id.* at 116 ("Under the typical regional HCP, developers wishing to build new residential, commercial, or industrial properties pay a fee that is used to help acquire, restore, and manage habitat for the protected species.").
34. In some respects, my proposal echoes the idea discussed by the Keystone Working Group of getting recovery teams to analyze the least-cost ways of recovering species. Keystone Center, *supra* note 28, at 32.

lations designating critical habitat, or prohibitions on taking the species, or obligations that federal agencies consult with the FWS. The FWS also should be required to periodically review and update its determinations of the measures necessary to protect species.

The idea of using a cost-effectiveness test to design protective measures for species on an individual basis builds on several existing features of the ESA. For example, the Act currently recognizes in several places that species require individually tailored protections. One example is the requirement that the FWS prepare a recovery plan after a species is listed. A second instance is the discretion that the Act grants the FWS to craft finely grained prohibitions on taking threatened species in particular.[35] There is also precedent in the current Act for considering the costs of protections before extending these protections to listed species. Before designating critical habitat for endangered and threatened species, the FWS is required to take into consideration "the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat."[36] As a result of this requirement, the FWS has considerable experience assessing the economic impacts of designating critical habitat, although the FWS' methodology for assessing these impacts is by no means beyond criticism. For instance, its economic impact analyses offer much more precise valuations of the costs than the benefits of designating critical habitat.[37]

Under my proposal, the FWS would not be weighing the costs and the benefits of a possible protective measure before deciding whether to implement it. Instead, the agency would be choosing among possible protective measures based on their relative costs. Since the FWS would only be required to count the costs of different measures, the gaps in properly valuing benefits would not matter.

I emphasize that I am not seeking to weaken the protection available to species by stipulating that measures to safeguard them should be designed on a case-by-case basis after they are listed. On the contrary, my goal is to craft stronger, more efficient protections for listed species than many currently enjoy. Protecting biodiversity should not be an all or nothing decision contingent on listing species as it generally is now.

III. Direct Funding to Biological Hotspots

There is no guarantee that protecting each species cost effectively will produce the most conservation for the buck overall. We might simply end up protecting many species in the cheapest way possible on a per-species, or retail, basis. But in the aggregate it might be more cost-effective to protect a smaller number of indicator or umbrella species in the cheapest way possible. Protecting these species in turn might safeguard many others from extinction without requiring us to specifically target the other species. This is the basic intuition behind the biological hotspot strategy, which in effect seeks to cost-effectively protect as many species as possible on a wholesale level.[38]

Ultimately, properly targeting funding for conservation policy to protect the most species possible at the least cost requires rethinking the way we allocate public and private funding for species conservation. This is not something that can be done by reforming the ESA. Public and private actors decide how much to spend on species conservation and how this spending should be distributed among species in response to the political, bureaucratic, and other incentives that they face, not based on the requirements of the ESA.[39] These funding decisions, however, have major implications for the ESA. How much is spent on species conservation and how it is spent frustrate or facilitate efforts to protect species.

The current allocation stems from well-entrenched features of the political system. One idea might be to add new reporting requirements into the ESA in an effort to shift popular, political, and bureaucratic opinion toward funding protection for hotspots. Currently, the Act requires the FWS to make various reports to Congress.[40] We should add reporting requirements that would force the FWS to determine how the U.S. is doing in protecting its biological hotspots and how current resource allocations compare to those that would protect these hotspots. For example, the FWS might be statutorily required to report every few years on how well the United States is doing in protecting its biological hotspots. In addition, the FWS might be required to report every two years on how funding for its Endangered Species Program, as well as total federal and state funding on imperiled species, would be distributed if we were protecting biological hotspots in the United States, and how much the current allocation of funds departs from this theoretical ideal.[41] The FWS also could report periodically on how much the allocation of funding for the Endangered Species Program and the allocation of total federal and state spending among species depart from the allocation suggested by the agency's priority ranking system for species.[42]

Reports such as these would not by themselves trigger wholesale changes in the allocation of funding among species. But these reports might be used by policy entrepreneurs in land trusts, NGOs, academia, Congress, and state legislatures, as well as federal and state agencies, to gradually reconfigure funding to achieve more conservation.

35. 16 U.S.C. §1533(d).
36. 16 U.S.C. §1533(b)(2).
37. *See, e.g.*, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Blackburn's Sphinx Moth, 68 Fed. Reg. 34710, 34727 (June 10, 2003) ("It is not feasible . . . to fully describe and quantify . . . benefits in the specific context of the proposed critical habitat for Blackburn's sphinx moth because of the scarcity of available studies and information relating to the size and value of beneficial changes . . . likely to occur as a result of listing the moth or designating critical habitat.").
38. Conservation International, The Hotspots (2008), http://www.conservation.org/explore/priority_areas/pages/hotspots.aspx (last visited Sept. 14, 2008).
39. *See* Wyman, *supra* note 25, at 499-502.
40. *See, e.g.*, 16 U.S.C. §1544.
41. There already is some research assessing whether federal and state spending on species is in effect targeting hotspots. *See, e.g.*, Flather et al., *supra* note 13, at 374 (suggesting that currently species-specific spending is not targeting hotspots).
42. *See* Wyman, *supra* note 25, at 500-01.

IV. Create Additional Protected Areas

The ESA is only one of the tools at our disposal to protect biodiversity, and perhaps not even the most important one. As just discussed, funding decisions made separately from the ESA have an equal and probably more significant impact on species preservation. Similarly, decisions about which lands and marine areas to protect made under statutes like the Antiquities Act, the Wilderness Act, and the Wild and Scenic Rivers Act also have a great deal of influence on whether we are able to successfully protect biodiversity. While we should rethink the ESA so that we can better address the pervasive threats to species today, we should not expect the ESA to bear the full weight of protecting biodiversity. The Act, after all, essentially offers emergency safeguards for species that are on, or close to, the brink of extinction.[43] It would be better to take preventative actions to avoid bringing species to this point by acting under the myriad of other legislative and policy frameworks that allow us to prophylactically protect biodiversity.

The distribution of imperiled species in the United States indicates that we will never be able to rely completely on protected areas to safeguard species.[44] However, there is a powerful argument that one of the best ways of protecting biodiversity is through protected areas because these areas can be managed to privilege biodiversity protection.[45]

At the dawn of the twenty-first century, the time is ripe for expanding our protected areas to respond to the preservation needs of our own time. In light of our over-exploitation of marine resources in the 20th century, we need to establish protected areas in the U.S. Exclusive Economic Zone before these waters are stripped further of biodiversity.[46] We also need to increase the diversity of our protected areas on land. In addition, we should be analyzing the likely impacts of climate change on our protected areas, and whether we need to establish new protected areas in light of the expected impacts of climate change on humans and other species. There also is a powerful argument for transferring some acreage currently held in the public domain to private actors, especially if this acreage is being actively exploited, as we expand the number of protected areas overall.

A congressionally chartered commission should be established to review the U.S.'s current approach to protected areas on land and water, map out the needs for protected areas going forward, and determine how these needs should be met. The tremendous growth in the past two decades in the acreage held under conservation easements[47] indicates that there is significant scope for land trusts, private actors, and NGOs as well as governments to participate in expanding our network of protected areas to better protect biodiversity. However, we might want to steer private and non-profit actors more than we have to date towards protecting acreage in certain parts of the country or certain types of land- and sea-scapes.[48] This could be done by offering extra tax advantages for easements that would protect biodiversity in hotspots.

V. Conclusion

For the past decade or so, many of the ESA's supporters and critics have been bogged down in a series of small "p" policy debates about issues such as whether critical habitat should be designated and if so when, whether landowners should be compensated for measures they are required to take to protect species, and the merits of flexible instruments such as habitat conservation plans introduced in the 1990s. It is time to set aside these debates and to address the underlying cause of the ESA's ills: the pervasiveness of human-induced threats to species that are behind the warnings from many ecologists that "[w]e are at the beginning of the sixth great extinction event."[49] The pervasiveness of these threats means that we need to prioritize our conservation efforts. It also requires us to think beyond the ESA. A reformed ESA cannot be the only mechanism through which we attempt to protect biodiversity in the world we now dominate.

43. Bradley C. Karkkainen, *Biodiversity and Land*, 83 Cornell L. Rev. 1, 20 (1997).
44. Mark L. Shaffer et al., *Proactive Habitat Conservation*, *in* 1 The Endangered Species Act at Thirty, *supra* note 15, at 286, 291. *See also* Jonathan H. Adler, *Money or Nothing: The Adverse Environmental Consequences of Uncompensated Land-Use Controls*, 49 B.C. L. Rev. 301, 302 (2008) ("A significant majority of those species currently listed as threatened or endangered under the Endangered Species Act rely upon private land for some or all of their habitat.") (citing various sources on the importance of private lands for listed species); Frank W. Davis et al., *Renewing the Conservation Commitment*, *in* 1 The Endangered Species Act at Thirty, *supra* note 15, at 304 ("50 percent of listed species [have] . . . 80 percent or more of their known occurrences on private lands."); J.M. Scott et al., *Nature Reserves: Do They Capture the Full Range of America's Biological Diversity?*, 11 Ecological Applications 999, 999 (2001) ("Preliminary assessments of the distribution of threatened and endangered species suggest that >90% of such species occur on private lands, with 66% having >60% of their area on private lands.").
45. Professor Karkkainen makes a powerful case for establishing biological reserves on federally owned public lands. Karkkainen, *supra* note 43.
46. Stephen Palumbi, Pew Oceans Commission, Marine Reserves: A Tool for Ecosystem Management and Conservation (2002), *available at* http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/pew_oceans_marine_reserves.pdf. The U.S. is already taking some steps toward protecting marine life. President Bush recently established a marine reserve that is the largest nature reserve in the world. *See* Felicity Barringer, *Support for Marine Reserves*, N.Y. Times, Aug. 26, 2008, at A13; Christopher Pala, *A Long Struggle to Preserve a Hawaiian Archipelago and Its Varied Wildlife*, N.Y. Times, Dec. 19, 2006, at F3.
47. *See, e.g.*, James R. Rasband & Megan E. Garrett, *A New Era in Public Land Policy? The Shift Toward Reacquisition of Land and Natural Resources*, 53 Rocky Mtn. Min. L. Inst. 6, 33 (2007); John Echeverria & Jeff Pedot, Drawing the Line: Striking a Principled Balance Between Regulating and Paying to Protect the Land 2-3 (Georgetown Environmental Law & Policy Institute, Discussion Draft, 2008).
48. There is little public oversight or coordination of where conservation easements are placed. Echeverria & Pedot, *supra* note 47, at 7-9.
49. Michael Novacek, Terra: Our 100-Million-Year-Old Ecosystem—and the Threats That Now Put It at Risk xiv, 340 (2007).

RESPONSE

Comment on *Rethinking the ESA to Reflect Human Dominion Over Nature*

by Wm. Robert Irvin

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Above my desk at work, I keep a button that reads "Save the Ugly Animals Too." It is a reminder that more than just the charismatic megafauna, such as wolves and bald eagles and grizzly bears and whales, are worth conserving. From the standpoint of protecting the web of life, including the ecosystems that benefit us all by providing services such as water purification, flood control, nurseries for our fish and shellfish, and opportunities for outdoor recreation, it is often as important to conserve the lesser known species, the cogs and wheels that drive those ecosystems.

The commitment to conserve threatened and endangered species, and the ecosystems upon which they depend, is the grand promise of the Endangered Species Act (ESA).[1] Enacted in 1973, the ESA has done a remarkable job of saving from extinction charismatic and "ugly animals" alike. In doing so, it has engendered enormous controversy at times, such as the debate in the mid-1970's over the snail darter and the Tellico Dam, the battles in the 1980's and early 1990's over the northern spotted owl and logging of old growth forests in the Pacific Northwest, and the current flare-up over the Delta smelt and water for California's Central Valley farmers. Despite these controversies, the ESA has endured, testifying both to the value Americans place on preventing extinction and the flexibility of the ESA.

However, as Katrina Wyman correctly notes in her thought-provoking Article,[2] while the ESA has endured, it has not always prospered in its overarching goal of recovering species to the point where the ESA's protections are no longer required.[3] Only a handful of species have recovered to the point where they have been delisted. And while supporters of the ESA, myself included, argue that the appropriate measure of the ESA's success is not simply the number of fully recovered species, but the much higher number of species that have been saved from extinction due to the ESA's protection, that argument is not entirely persuasive.

Wyman points out that the number of species protected by the ESA is only a fraction of the species actually imperiled. Limited resources, in staff and funds, within the U.S. Fish and Wildlife Service (FWS) have prevented listing and critical habitat decisions from being made in a timely fashion or on the basis of greatest conservation need. Rather, litigation, threatened and real, has largely driven which species get FWS' attention. With the Intergovernmental Panel on Climate Change projecting that as much as 30% of species could go extinct in this century at current rates of global warming,[4] Wyman reasonably predicts that the listing backlog will only worsen.

Wyman also points out that not only is funding for endangered species conservation inadequate, but the funding that is available is not always spent on either the species most in need or the species that would most benefit from it. Instead, species that have political pull or some other type of appeal are more likely to be the beneficiaries of limited recovery funds. Thus, for endangered species, like Hollywood actors or professional athletes, it pays to have a good agent.

Finally, Wyman notes that although endangered species conservation may not cost society as much as the ESA's detractors would have us believe, this fact is due as much to a lack of enforcement and monitoring as anything else. Although she describes the ESA as more of a paper tiger than a pit bull, Wyman points out that landowner perception of the ESA's power too often leads to intentional destruction of endangered species habitat in order to avoid the ESA's restrictions.

1. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18. "The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section." *Id.* §1531(b).
2. Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion Over Nature*, 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10803 (Aug. 2010) (a longer version of this Article was originally published at 17 N.Y.U. Envtl. L.J. 490 (2008)).
3. "The terms 'conserve', 'conserving', and 'conservation' mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." 16 U.S.C. §1532(3). Thus, conservation means recovery.
4. A. Fischlin et al., *Ecosystems, Their Properties, Goods, and Services, in* Climate Change 2007: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 211-72 (M.L. Parry et al. eds., 2007).

Underlying all of the problems, Wyman posits, is a fundamental "denial of the extent of human domination of nature" in the ESA. She argues:

> My basic critique of the ESA is that it is built on an untenable premise that there is something natural—whether called species, ecosystems, or biodiversity—out there that we can save from humanity's reach. The Act's problems ultimately are rooted in a denial of the extent of human domination of nature and a failure to recognize our limited ability to halt and reverse the decline of species, ecosystems, and biodiversity given our pervasive impact on the planet.[5]

In short, Wyman argues that we cannot save it all and pretending we can only undermines the overall effectiveness of our conservation efforts.

While I agree with Wyman that implementation of the ESA has at times left much to be desired, I disagree with her diagnosis of the underlying problem, that the ESA is premised on a denial of human dominion over nature. In the opening words of the ESA, Congress found that "various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."[6] Thus, Congress clearly recognized that human impacts on nature are the fundamental causes of endangerment and, therefore, human dominion over nature.

With the recognition of human dominion over nature comes its corollary, human stewardship of nature. The concept of stewardship is fundamental to the overarching goal of the ESA, to recover species to the point where the protection of the ESA is no longer required. Indeed, while we may have dominion over nature, we do not necessarily know the comparative value of each of its components and the consequences of losing any one of them. No wonder then that Aldo Leopold wisely concluded that "[t]o keep every cog and wheel is the first precaution of intelligent tinkering."[7] Thus, even if we cannot achieve recovery for every species, the duty to try is an important recognition of our stewardship of nature. As Robert Browning wrote:

> Ah, but a man's reach should exceed his grasp,
> Or what's a heaven for?[8]

While I believe that our obligation as stewards of nature necessitates the extraordinary reach of the ESA, I recognize, as Wyman does, that in practice the ESA has had a limited grasp. As a result, her thoughtful recommendations for improving the effectiveness of the ESA warrant serious consideration.

Wyman proposes four steps to improve ESA effectiveness. First, she recommends that the decision of what level of protection to provide a species be separated from the decision to list that species. Second, rather than seeking to recover every species that is listed, conservation goals should be set based on what is achievable as a practical and fiscal matter for each species. Third, conservation funding should be directed to biological hotspots, where limited funds will produce the greatest conservation benefit by conserving indicator or umbrella species, the conservation of which also results in conservation of other species. Fourth, we should use conservation laws and measures besides those provided by the ESA to conserve species.

To some extent, her first recommendation, that the decision to list a species be separated from the decision of what level of protection to provide it, is already occurring in certain circumstances. Protection for threatened species under the ESA can vary, by promulgating a rule pursuant to Section 4(d) specifying what protections shall apply.[9] While the determination whether a species should be listed as endangered or threatened is supposed to be purely a biological one, the added flexibility of a threatened listing has undoubtedly tipped the balance in certain listings.[10] Separating the decision to list from determining the implications of that listing may make such decisions more transparent. It will not, however, eliminate potential controversy over protecting a species; rather, it may only defer such controversy to a later stage in the administrative process. Additionally, for those species that are indisputably endangered, a sliding scale of protection, rather than the full protection currently afforded such species by the ESA, would be unwarranted.

Wyman's second recommendation, setting conservation goals that are achievable for each species, also may be taking place de facto. There are species that have such limited range and are of such limited numbers that they will never reach a point where the ESA's protection is no longer needed. For these conservation-reliant species, stabilization, not recovery, is the goal.[11] And even though the ESA sets a general goal of recovering species, it does not preclude a more practical recognition that recovery may not be achievable in all cases. However, setting a lesser goal than recovery should be the exception, not the rule. Otherwise, it will become too convenient to decide that a particular species is not worth recovering, even though we may be unable, or unwilling, to fully calculate the cost of not recovering the species.

Wyman's third recommendation, directing limited funding to biological hotspots where it will do the most good, is extremely sensible. Clearly, protecting umbrella and keystone species, the conservation of which will also conserve other species within the same ecosystem, is an effective way to spend limited resources. However, unless a system is developed that eliminates congressional earmarks and similar

5. Wyman, *supra* note 2, at 10803.
6. 16 U.S.C. §1531(a)(1) (emphasis added).
7. Aldo Leopold, *The Round River, in* A Sand County Almanac, With Essays on Conservation From Round River 190 (1970).
8. Robert Browning, *Andrea del Sarto* (1855), *available at* http://www.poemhunter.com/poem/andrea-del-sarto/.
9. 16 U.S.C. §1533(d).
10. For example, the decision to list the polar bear as a threatened species, rather than endangered, is currently being challenged in litigation in part as a political, rather than biological, determination. *See* Center for Biological Diversity v. Kempthorne, No. 1:08-cv-2113 (D.D.C. 2009).
11. The Devil's Hole pupfish (*see* http://www.fws.gov/nevada/protected_species/fish/species/dhp/dhp.html) and the Bruneau Hot springsnail (*see* http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=G03R) are good examples of species with such limited range (each inhabits a single small body of water) that they will always be dependent on the ESA's protection for their continued survival.

political pressure on budget decisions by federal agencies, it is unlikely that any system of prioritizing funding for biological hotspots can be fully or effectively put in place.

Wyman's fourth recommendation, using conservation laws other than the ESA to conserve species, is the most important step to be taken. When we fail to protect species and their habitats under laws such as the National Forest Management Act[12] or the Clean Water Act,[13] the ESA is the final safety net. Consequently, the ESA generally bears the blame in any ensuing controversy over the social or economic costs of species protection when, in reality, the fault lies in our failure to use other conservation laws that may have prevented the need to list the species in the first place. To fix this problem, however, stronger directives to conserve species and habitat will have to be written into those conservation laws. Doing so may prove as problematic politically as would reauthorizing the ESA.

Experience has demonstrated that the ESA is not a perfect solution to conserving biodiversity. Wyman's analysis of the ESA's failings is provocative, compelling us to confront some of the law's imperfections and consider their underlying causes. Her recommendations are similarly thoughtful, challenging us to consider what must be done to make a more perfect ESA. That we may never achieve perfection is no reason not to strive for it, in life or the law.

12. 16 U.S.C. §§1600-1687, ELR Stat. NFMA §§2-16.
13. 33 U.S.C. §§1251-1387, ELR Stat. FWPCA §§101-607.

RESPONSE

Above All, Try *Something*: Two Small Steps Forward for Endangered Species*

by Richard P. Johnson

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In a recent essay,[1] Katrina Wyman suggests four substantial reforms aimed at improving implementation of the Endangered Species Act (ESA)[2] and furthering species recovery: (1) decoupling listing decisions from permanent species protection;[3] (2) requiring the Fish & Wildlife Service (FWS)[4] to implement cost-effective species protection measures;[5] (3) prioritizing funding for biological hotspots;[6] and (4) establishing additional protected areas.[7] Although Wyman does not specifically frame it this way, these four proposals amount to a grand legislative bargain: ESA critics would get a regulatory mechanism that specifically requires the FWS to take costs into account, while environmentalists would get more funding for species recovery and more land, both federal and nonfederal, on which development is restricted or prohibited.

These are bold proposals. Wyman correctly perceives that the most likely way forward from the current sterile debates over the ESA will involve some form of painful legislative compromise. However, her proposals reach so far that they stand little chance of immediate enactment. Two more modest types of compromise focused on federal lands may offer greater prospects for near-term progress.

I. One Giant Leap?

Everyone who checks into an emergency room checks out, either with or without a pulse. The ESA's emergency room is different: most listed species simply do not leave.[8] This outcome is disappointing but not necessarily disastrous.[9] While one of the ESA's goals is species recovery,[10] the ESA is hardly the first law to fall short of its own grandiose aspirations.[11] "The reality is that the ESA has worked out as a pragmatic compromise—few species actually recover but few slide into extinction[.]"[12] Successive Congresses have tolerated this compromise; the ESA has been substantively amended just once in the last 20 years.[13]

This long legislative reticence in the face of pungent controversy suggests the odds are against fundamental changes to the ESA. In addition, the grand bargain Wyman proposes would require each side in the ESA debate to make large,

* "It is common sense to take a method and try it. If it fails, admit it frankly and try another. But above all, try something." Franklin D. Roosevelt. Oglethorpe University Commencement Address (May 22, 1932).

1. Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion Over Nature*, 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10803 (Aug. 2010) (a longer version of this Article was originally published at 17 N.Y.U. Envtl. L.J. 490 (2008)).
2. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.
3. Wyman, *supra* note 1, at 10804-05.
4. The U.S. Department of the Interior's Fish and Wildlife Service and the U.S. Department of Commerce's National Marine Fisheries Service (NMFS) share responsibility for implementing the ESA. Generally, the Fish and Wildlife Service manages land and freshwater species, while NMFS manages marine and anadromous species. Of the 1900 listed species, NMFS has jurisdiction over just 68. Endangered Species Act (ESA), http://www.nmfs.noaa.gov/pr/laws/esa/ (last visited Jan. 23, 2010). Although some of these species present headline-grabbing public policy challenges, such as the sockeye salmon (http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Sockeye/SOSNR.cfm), for simplicity's sake I confine my remarks (as Wyman did) to the Fish and Wildlife Service.
5. Wyman, *supra* note 1, at 10805-07.
6. *Id.* at 10807-08.
7. *Id.* at 10808.
8. *See, e.g.,* John Kostyack & Dan Rohlf, *Conserving Endangered Species in an Era of Global Warming,* 38 Envtl. L. Rep. News & Analysis 10203, 10208 (2009).
9. Well, it is not disastrous *yet. See infra* note 17.
10. The ESA's principal purpose is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved[.]" 16 U.S.C. §1531(b). The act defines "conserve" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." 16 U.S.C. §1532(3).
11. For example, the Clean Water Act declares that "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985." 33 U.S.C. §1251(a)(1), ELR Stat. FWPCA §101(a)(1). Today this goal seems comical, yet few have written off the Clean Water Act as a wholesale failure.
12. J.B. Ruhl, *Adapting the Endangered Species Act to a Changing Climate*, 41 Trends: ABA Section of Environment, Energy, and Resources Newsletter 9 (Nov./Dec. 2008). *See generally* U.S. Government Accountability Office, Endangered Species: Fish and Wildlife Service Generally Focuses Recovery Funding on High-Priority Species, but Needs to Periodically Assess Its Funding Decisions, GAO-05-211 (2005).
13. Pub. L. No. 108-136, Div. A, Title III, §318, 117 Stat. 1433 (2003) (limiting the FWS' authority to designate critical habitat on lands controlled by the U.S. Department of Defense).

visible concessions on long-held principles in exchange for the prospect of potentially large but highly indeterminate benefits. Many legislators would decline this invitation, particularly those who fear a primary challenge from their own party's base more than a general election loss.

II. Two Small Steps

"Where the mind labors to discover the design of the legislature, it seizes every thing from which aid can be derived."[14] As Wyman recognizes, saving ecosystems demands a similarly ecumenical approach.[15] Wyman also recognizes (if only tacitly) that progress depends on significant political compromises.[16] While federal lands are not the only hope for species recovery, they will play a critical role in any organized effort to alleviate the condition of species in the ESA emergency room.[17]

Place-based land management legislation and collaborative land management under existing law provide two possible methods for assisting species recovery through ecosystem restoration. Nie[18] and Keiter[19] have recently assessed the problems and prospects associated with place-based legislation—that is, legislation designed to address the specific land management challenges of a given region or locality. Neither article focuses on species recovery, yet legislation that effectively restores and/or protects resilient ecosystems could enhance recovery of listed species.[20] As relevant here, such legislation generally (1) designates additional protected federal lands as Wyman advocates, such as wilderness, though usually at the price of authorizing or even requiring development on other federal lands;[21] and/or (2) establishes land management goals (such as ecological restoration) and related methods for achieving those goals.[22] Place-based legislation responds to local ecological and economic conditions and enhances local participation in land management decisions, but carries with it the reciprocal risks of balkanizing federal land management by carving the federal estate into locally dominated fiefs.[23] The record of place-based federal land management legislation is checkered at best.[24] As Keiter suggests, perhaps the most significant point about this record is that there *is* a record—in contrast to its legislative modesty with respect to the ESA, Congress has passed place-based laws with gusto.[25] This provides a considerable, if not yet wildly encouraging, base of experience on which to build. Unlike root and branch ESA reform, place-based experiments face a better chance of surviving the legislative gauntlet.

Ecosystem restoration and species recovery may also proceed using collaborative land management approaches under existing law. As GAO reported recently,[26] numerous regional and local groups have successfully used collaborative resource management to begin addressing longstanding resource conflicts in a variety of geographic, ecological, and economic contexts.[27] Collaborative resource management is much more than the mere absence of conflict; it includes several key characteristics such as: (1) inclusive representation of all key stakeholders; (2) developing common goals; (3) leveraging available resources; and (4) providing conservation

14. United States v. Fisher, 6 U.S. (2 Cranch) 358, 386 (1805) (Marshall, C.J.).
15. "The ESA is only one of the tools at our disposal to protect biodiversity, and perhaps not even the most important one." Wyman, *supra* note 1, at ###.
16. *See supra* notes 5-6 and accompanying text.
17. Wyman, *supra* note 1, at 10808; *see also* Bradley C. Karkkainen, *Biodiversity and Land,* 83 Cornell L. Rev. 1, 41-56 (1997). Many species' days in the emergency room are numbered, because climate change will desiccate, inundate, or incinerate their hospital beds. *See generally* J.B. Ruhl, *Climate Change and the Endangered Species Act: Building a Bridge to the No-Analog Future,* 88 B.U. L. Rev. 1 (2008).
18. Martin Nie & Michael Fiebig, *Place-Based Legislation as Method of Resolving Multiple-Use Conflicts on National Forests,* Ecology L.Q., 37(1) at 12-19 (forthcoming 2010), *available at* http://www.cas.umt.edu/facultydatabase/FILES_Faculty/1126/Place%20based%20forest%20law.pdf.
19. Robert B. Keiter, *Public Lands and Law Reform: Putting Theory, Policy, and Practice in Perspective,* 2005 Utah L. Rev. 1127, 1208, 1210 (2005).
20. *See, e.g.*, Reed F. Noss, *Some Principles of Conservation Biology as They Apply to Environmental Law,* 69 Chi. Kent L. Rev. 983, 904-07 (1994). Ecosystem "restoration" refers to restoring the ecosystem to its condition prior to intensive human disturbance, *see* Keiter, *supra* note 19, at 1195, or more precisely "the restoration of degraded ecosystems to emulate more closely, although not necessarily duplicate, conditions which prevailed before disruption of natural structures and processes." Covington et al., Ecosystem Restoration and Management: Scientific Principles and Concepts 601 (1998). "Resilience" refers to the ability of an ecosystem to recover from severe disturbances such as severe wildfires, insect outbreaks, etc. *E.g.,* Johnson and Franklin, Restoration of Federal Forests in the Pacific Northwest: Strategies and Management Implications 6 (2009).
21. This category covers most recent wilderness bills. *See* Nie & Fiebig, *supra* note 18, at 16-17. A pending Senate bill, S. 1470, would address long-running timber harvesting controversies in western Montana, centering in part on the threatened grizzly bear, by setting aside certain lands for wilderness or other conservation purposes while requiring the Forest Service to implement ecosystem restoration projects, which would include harvesting, in areas deemed less important for grizzly habitat.
22. For example, the law implementing the star-crossed Quincy Library Group forest management compromise falls into this category. Nie & Fiebig, *supra* note 18, at 13. A pending Senate bill, S. 2895, would address a portion of the all-too durable spotted owl controversy in the Pacific Northwest by authorizing certain timber harvesting activities as part of a larger strategy to restore the dry forest landscapes of eastern Oregon, while imposing clear limits on certain old-growth harvesting.
23. Keiter, *supra* note 19, at 1208-10.
24. Nie & Fiebig, *supra* note 18, at 12-19, 28-29; *see also* U.S. Government Accountability Office, Valles Caldera: The Trust Has Made Progress but Faces Significant Challenges to Achieve Goals of Preservation Act, GAO-10-84 (2009); U.S. Government Accountability Office, Natural Resource Management: Opportunities Exist to Enhance Federal Participation in Collaborative Efforts to Reduce Natural Resource Conflicts, GAO-08-262 at 97-103 (2008) (discussing the arduous implementation history of the Steens Mountain Cooperative Management and Protection Act).
25. Keiter, *supra* note 19, at 1209.
26. U.S. Government Accountability Office, Natural Resource Management: Opportunities Exist to Enhance Federal Participation in Collaborative Efforts to Reduce Natural Resource Conflicts, GAO-08-262 (2008) [hereinafter GAO: Opportunities Exist].
27. *Id.* at Appx. II (discussing seven different collaborative resource management efforts around the country).

incentives (such as conservation easements).[28] The collaborative efforts GAO studied had many of these characteristics, and generally reduced conflicts over natural resources while improving natural resource conditions, although data demonstrating the latter was limited.[29] Four of the seven collaborative efforts GAO studied are addressing ecosystems that support listed species.[30]

III. Conclusion

Whether or not Wyman's grand ESA bargain is appealing, no such deal is likely in the near future. Place-based ecological restoration legislation has a greater chance of passage, and will allow experimentation with different approaches to ecosystem restoration and therefore species recovery on federal lands. Even without such legislation, collaborative resource management groups are making some restoration progress and offer another potential lifeline for listed species. Merging the two approaches, that is, developing place-based laws with the key collaborative resource management characteristics in mind, may help to avoid the pitfalls of earlier place-based legislative efforts.[31] That could be an innovative way of getting listed species out of the emergency room alive and well, and it certainly will not hurt to try until a better deal comes along.

28. *See id.* at 21-23 for the full list of characteristics GAO identified. Providing incentives for conserving species and their habitat on nonfederal lands to avoid listing may be particularly promising. *E.g.,* Donald C. Baur et al., *A Recovery Plan for the Endangered Species Act,* 39 ELR 10006, 10008-09 (Jan. 2009). However, such approaches must deliver real ecological progress rather than empty sugarcoated calories. *Cf.* Florida Key Deer v. Paulison, 522 F.3d 1133, 1147, 38 ELR 20083 (11th Cir. 2008) (FEMA program offering incentives to communities to develop conservation plans violated ESA requirement that agencies develop programs to conserve species because program had been totally ineffective).
29. GAO: Opportunities Exist, *supra* note 26, at 26-40.
30. These include the Blackfoot Challenge (bull trout, grizzly bear, gray wolf); the Malpai Borderlands Group (jaguar, among others); the Onslow Bight Forum (red-cockaded woodpecker); and the Uncompahgre Plateau Project (lynx). A fifth project, the Cooperative Sagebrush Initiative, seeks to avert listing of the greater sage grouse and Gunnison sage grouse by taking measures to conserve sagebrush habitat in light of, among other things, significant oil and gas development that has occurred in recent years in the Interior west. *Id.* at Appx. II.
31. *See supra* note 26.

Wyman's *Rethinking the ESA*: Right Diagnosis, Wrong Remedies

by Steven P. Quarles

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Katrina Wyman[1] has penned a bold, provocative, and innovative critique of the capability of the Endangered Species Act (ESA or Act)[2] to meet the challenges of an increasingly human-dominated world. Bold because the ESA, perhaps more than any other environmental law, has impassioned champions who disfavor dissent. It is no easy task to critique a law with the truly noble mission to preserve life other than our own, particularly when the law's basic premise is that the mission's success is critically dependent on abundant and altruistic actions by us. Provocative because the author asks us to acknowledge that we cannot achieve that lofty mission through the ESA in its present form. Innovative because the author asks us to consider recasting that mission in terms both more modest (reduce automatic goal of recovery for each listed species) and more ample (protect biodiversity, not just specific species) and explore novel ways to contribute to the mission's success both within and beyond the confines of the ESA.

Anyone who assumes such a difficult task will surely draw doubts from kibitzers. Here is one such kibitzer and a few such doubts.

To summarize this Comment, I believe that Wyman has provided the right diagnosis, but not necessarily the right remedies. Our expectations for the ESA must be reduced even as we pursue biodiversity protection, but once reduced may be accommodated in large measure without the radical surgery on, and search for new legal authority beyond, the ESA suggested by the author. Indeed, certain remedies drawn largely from the existing text of the ESA may be more politically palatable and less costly, and therefore more achievable, even if they do not accomplish the degree of biodiversity protection most desired.

I. The Diagnosis

Despite a few quibbles over the author's description of the ESA—mistakes attributable I am sure to the desire for brevity in introductory material[3]—I believe the underlying message about the constraints on the ESA's capacity to fully serve

1. Katrina Miriam Wyman, *Rethinking the ESA to Reflect Human Dominion Over Nature*, 40 ELR (Envtl. L. & Pol'y Ann. Rev.) 10803 (Aug. 2010) [hereinafter Wyman ELPAR]. A longer version of this Article was originally published at 17 N.Y.U. Envtl. L.J. 490 (2008)) [hereinafter Wyman full-length].
2. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.

3. (i) The Article states that the "ESA was set up to protect imperiled biodiversity." Wyman full-length, *supra* note 1, at 493. Were that so! Instead, species and habitats are considered virtually in isolation under specific statutory listing or designation standards and in separate rulemakings. Had the law focused on biodiversity instead of individual species and their particular habitats, it might be more vital and viable today. There is little to nothing in the law's legislative history to suggest that Congress understood the concept of biodiversity when it adopted this species-by-species and habitat-by-habitat approach. In fact, Wyman notes that "[t]he term biodiversity postdates the passage of ESA." *Id.* at 493 n.11.

(ii) The Act may encourage designation of critical habitat "upon [species] listing." *Id.* at 494. However, it allows delays of either up to one year if the critical habitat "is not then determinable" or of an unspecified period if it is "essential to the conservation of [the] species" that the listing decision be "promptly published," and no designation whatsoever if designation would not be "prudent." 16 U.S.C. §1533(b)(6)(C).

(iii) Particularly problematic—without further explanation (which admittedly is partially given later, on p. 503)—is the statement that ESA §9(a)(1)(B) prohibits "taking the species' habitat." Wyman full-length, *supra* note 1, at 494. The most common misperception I find in my practice is that the ESA prohibits "take of habitat." To the contrary, the U.S. Fish and Wildlife Service (FWS) regulation that defines one form of "take" to include habitat alteration still requires that the species itself must be taken by that habitat impact before "take" can be established ("habitat modification or degradation where it actually kills or injures…" a listed species). 50 C.F.R. §17.3, definition of "harm"; *see* Babbitt v. Sweet Home Chapt. of Comtys. for a Great Oregon, 515 U.S. 687, 692 n.2, 25 ELR 21194 (1995).

(iv) The Article asserts that a "species that is listed as threatened gets the benefit of all [of the Act's] protections except for §9 [including its "take" prohibition], but the FWS can apply §9 or develop more finely grained prohibitions to protect the species." Wyman full-length, *supra* note 1, at 498. This statement is at best misleading, as FWS (unlike the National Marine Fisheries Service) has promulgated a rule that automatically applies all §9 prohibitions to each threatened species—previously or subsequently listed—*unless* a species-specific rule is adopted that removes or reduces the "take" or other prohibition. 50 C.F.R. §17.31(a).

(v) Of particular relevance to this Article is the description of the recovery plan. The Article states that "the ESA requires the FWS to develop and implement recovery plans. . . ." Wyman ELPAR, *supra* note 1, at ### n.17 (citing 16 U.S.C. §1533(f). "[D]evelop"—yes, unless the plans are found to "not promote the conservation of the species." 16 U.S.C. §1533(f). But not "implement"—abundant case law, legislative history, and administrative rulings make clear that recovery plans have virtually no force and effect of law and certainly may not be enforced by FWS against other federal agencies or other

its mission to avoid extinctions and ensure recovery of species in peril is unimpeachable.

A number of articles, including an article previously selected for ELPAR[4] and an article by this commenter,[5] have questioned the future viability of the ESA in the face of climate change. That position was based on two fundamental concerns: (i) the ESA cannot keep pace with the alarming number of climate change-related extinctions forecast by many scientists, and (ii) the provisions of the ESA may not be capable of providing meaningful protection for listed species and designated critical habitat against the particular threats posed by climate change. What Wyman so ably does is to remind us that the ESA and its mission are under siege from a wide panoply of threats arising from humans' increasing dominion over nature, not just the threats posed by global warming due to anthropogenic emissions of greenhouse gases. Her thesis holds true even were there no climate change, as our population and technology expand to crowd out or render inhospitable species' habitats. Wyman states that humans' dominion over nature was not only less severe at the time of ESA's enactment but also "unacknowledged in the Act."[6] This dominion "is endangering species, increasing the cost of protecting species, and in turn generating opposition to the ESA from regulated communities such as property developers who have to bear the costs of species protection."[7] Moreover, the ESA is particularly ill-equipped to address the "dominion" phenomenon because it is "entangled in a morass" of maladministration, poor enforcement, and ill-advised litigation.[8] From these premises, Wyman sets as her "main objective . . . to begin sketching new ways of protecting biodiversity that reflect the reality of our human-dominated world."[9]

Others have commented on this "dominion" phenomenon, noting that many of the species listed in the ESA's infancy—grizzly bear, gray wolf, bald eagle—occupied habitats in which human presence was modest, but today human enterprise has spread so wide that we and listed species live side-by-side. In that vein, I have suggested that the ESA today "impos[es] on us broader interspecies fair housing obligations."[10] Wyman appropriately cautions that the ESA presently is not equipped to perform those obligations.

II. Recently Suggested Remedies

Wyman proceeds from her diagnosis to a discussion of two recently prescribed remedies—"paradigms" or "approaches"[11]—to address the increasing fragility of the ESA and pursue protection of biodiversity: identifying and marketing ecosystem services and identifying and protecting "biological hotspots." Her descriptions of these two strategies, their origins, and initial efforts to apply them are instructive. I share her concern (at least in the short term) about the availability of the ecosystem services concept, particularly to secure biodiversity protection. The concept faces daunting challenges to measure the services (monetizing them for purchase or developing metrics for government programs) in a consistent and credible manner, to define them as tradable property rights, to establish markets for them, to develop a broad base of sellers and buyers (taking markets to scale), and to ensure they are employed for the purpose of biodiversity protection.[12]

More questionable is the basis for Wyman's optimistic view of the biological hotspots approach, despite its admirable ability to "squarely address . . . the need to prioritize the protection of some biodiversity if we are to meaningfully protect much of it."[13] The hotspots paradigm is of greater importance in the Article than the ecosystem services paradigm; Wyman basically discards the latter, but integrates the former into her recommended remedies. Hotspots produce conspicuous economic and political winners and losers, typically inexpedient for any policy. How will the congressional delegations of other states feel if the Appropriations Committees attempt to steer all or most federal wildlife and habitat protection funds to the handful of States generally acknowledged to host the hotspots? How far would those appropriated funds go if, as in most cases, the very reason the hotspots exist is because they are experiencing dynamic development, with accompanying high land prices and costly protective buy-out prospects? Wyman mentions the importance of states and local land trusts in funding for biodiversity protection,[14] but how are those geopolitically diverse funding sources to be applied to the geographically discrete hotspots? How will landowners, who already feel they bear disproportionately the costs of species/habitat protection, react to the inequity of imposing the vast majority of costs on those hapless properties located within the hotspots? Unfortunately, the Article does not identify or address these infirmities in the hotspots strategy.

III. The Author's Remedies

The presentation of remedies would have benefited from an assessment of political impediments. Wyman astutely notes the political constraints on the ESA in presenting her diagnosis (discussion of the present state of the ESA and biodiver-

public or private parties. *See* Fund for Animals v. Rice, 85 F.3d 535, 547-48, 26 ELR 21433 (11th Cir. 1996).

4. J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U. L. Rev. 1 (2008).
5. Steven P. Quarles & Thomas R. Lundquist, *The Endangered Species Act and Greenhouse Gas Emissions: Species, Projects, and Statute at Risk*, Proceedings of the 55th Annual Rocky Mountain Mineral Law Institute (2009).
6. Wyman full-length, *supra* note 1, at 507.
7. *Id.*
8. *Id.* at 494-507.
9. *Id.* at 492.
10. Steven. P. Quarles, *Why the ESA Is Different: Eight Reasons*, 21 Envtl. F. 50-51 (July 2004).
11. Wyman ELPAR, *supra* note 1, at 10803.
12. As one report found, "[e]cosystem services programs do not necessarily lead to biodiversity conservation and may negatively affect full, native biodiversity." Bob Searle & Serita Cox, *The State of Ecosystem Services*, The Bridgestone Group (Dec. 2009) (citing *Global Mapping of Ecosystem Services and Conservation Priorities*, 105 Proceedings of the Nat'l Acad. of Sci. 9495-500 (2008) (for the finding that "locations selected for conservation of ecosystem services would conserve only 22 to 35 percent as many species as locations selected for preservation of biodiversity")).
13. Wyman ELPAR, *supra* note 1, at 10804.
14. *Id.* at 10807-08.

sity protection), but then, unfortunately, seems to abandon most political considerations in devising and discussing the remedies. Certainly this is true for a number of the extra-ESA remedies. One example—the biological hotspots—is discussed above. A second example is the suggested large new set asides of land and water into "biological reserves" to enhance existing habitat and provide migratory routes for climate change-adapting species.[15] Volumes could be written about the political hurdles for this remedy. The need to reverse the discouraging trend of shrinking and degrading habitat is clear. However, any witness to the decade-long, and still unresolved, administrative and judicial battles over the fate of Forest Service roadless areas, and the notably few and highly contentious recent legislative contests over wilderness area designations, will have scant confidence that the need can be met by an aggressive set-aside program. The text of the Article is unclear as to whether these biological reserves are to be carved from existing federal lands or are to encompass private lands as well. Obviously, the political problems magnify if private lands are included. Moreover, earlier in the Article, Wyman acknowledges that, "efforts to protect ecosystems… have encountered the same difficulties resulting from human domination of nature that undermine efforts to safeguard individual species."[16]

Let's turn here to Wyman's remedies within the ESA. She proposes three principal changes to current ESA procedures, each of which would require substantial amendments to the Act. First, she would "decoupl[e] the decision to list a species from decisions about how to protect the species."[17] Decoupling would be initiated by removal of the "one-size fits-all protect[ive]" mechanisms (principally the §7 consultation procedure for federal agency actions and the §9 "take" prohibition for actions that do not require federal permits or have any other federal nexus) from immediate (or possibly any future) application to species upon listing.[18] Second, the decoupling would be achieved by engaging in post-listing crafting of cost-effective mechanisms "tailored to the need of each species and its circumstances," including "promulgat[ing] any regulations to implement" them.[19] And, third, "temporary protections" would be imposed until those species-specific mechanisms are in place.[20]

Not surprisingly, the initial decoupling and temporary protection portions of this approach—albeit more modest versions—have received flitting attention before. In 1995, the National Research Council, in its report entitled *Science and the Endangered Species Act*, proposed designation of "survival habitat" as an "emergency, stop-gap measure" upon listing of a species and postponement of designation of critical habitat until publication of a recovery plan.[21] Similarly, the U.S. Senate Committee on the Environment and Public Works twice reported bills, in 1997 (S. 1180) and 1999 (S. 1100), that would have postponed any consideration of designating critical habitats until the preparation of recovery plans, without any new interim habitat protection mechanism. These proposals did not survive political scrutiny—the report quickly disappeared from any ESA discourse and neither bill received even a Senate vote.[22]

The premises for this approach are that the existing ESA protective mechanisms produce one-size-fits-all protections, and that refraining from the imposition of these existing statutory mechanisms and instead shaping protective mechanisms unique to each listed species will "reduce the contentiousness of listing decisions by reducing the momentousness of listing,"[23] "reduce the incentive to litigate the FWS' listing determinations,"[24] and provide protections that "actually could be enforced."[25] These premises may be flawed for multiple reasons.

First, generally the only standardized aspects of the existing protective mechanisms are the procedures. However, contrary to the "one-size-fits all" characterization, those procedures produce quite heterogeneous substantive protections tailored to the needs of each species. Indeed, all of the protective measures suggested by Wyman have been or could be included in "the old stand-by" procedures.[26] Second, perhaps the most common mantra of the regulated community in addressing environmental law issues is that it seeks certainty in order to plan and conduct its activities. Not knowing what the particularized protective mechanisms for each species undergoing the listing process may be and to whom they may be applied will make the listing decisions more momentous, not less. Unknown policy and regulatory outcomes induce fear, not ease, and intensify, not diminish, political opposition. Third, this approach is not likely to reduce listing litigation. Whether the protective mechanisms are known at the time of listing or devised later, in either case the indispensable step toward providing those protections is the listing decision. The zeal to litigate to ensure that this prerequisite listing action does or does not occur should not change on the basis of whether the species in question is ultimately to be protected by one-size-fits-all, or particularized, mechanisms.

Fourth, shaping from scratch individualized protective mechanisms, particularly if they are to be implemented through additional rulemaking for each species, would be sufficiently time-consuming and costly so as to rapidly exhaust the funds and personnel of the FWS and National Marine Fisheries Service (Services). This additional stressor on the Services' resources would almost certainly impede the pace of listing and protecting imperiled species at a time both of these processes, according to the author, need to accelerate. Fifth, this approach—which does not advocate a reduction

15. *Id.*
16. Wyman full-length, *supra* note 1, at 508.
17. Wyman ELPAR, *supra* note 1, at 10808.
18. *Id.* at 10805.
19. *Id.*
20. *Id.*
21. *Science and the Endangered Species Act*, Nat'l Acad. Press 7-8, 76-77 (1995).
22. Steven P. Quarles & Thomas R. Lundquist, *Critical Habitat: Current Centerpiece of Endangered Species Act Litigation and Policymaking: Critical for Whom? The Species or the Landowner*, Proceedings of the 48th Annual Rocky Mountain Mineral Law Institute (2002).
23. Wyman full-length, *supra* note 1, at 516.
24. *Id.* at 519.
25. *Id.* at 523.
26. Wyman ELPAR, *supra* note 1, at 10805.

in listings and applies its protections post-listing—fails to overcome the listing quandary Wyman identified: "When added to the current number of imperiled but unlisted species, the number threatened by climate change calls into question the practicability of the ESA's approach of protecting species by extending regulatory safeguards contingent on listing."[27] Sixth, Wyman provides no basis for the claim that these "tailored protections… stand a better chance of being enforced."[28]

Wyman argues that the recovery plans should be "supplant[ed]" in favor of "identifying the most cost-effective ways of protecting a species."[29] She also raises the "fundamental question about whether we still should be aiming to recover listed species or whether it would be preferable to set a more realistic and precise, but less inspiring, objective."[30] I fully agree with the author's goals to secure for each listed species (i) individually tailored protections that (ii) are cost-effective and that, (iii) if necessary or appropriate, may seek to achieve a more modest objective than full recovery.

More problematic is the expressed need to "supplant'" the recovery planning process. To the contrary, recovery plans may be the best possible vehicle to achieve the author's goals. When done correctly (an admittedly infrequent occurrence), these plans do shape protective measures to the particular plight of each species. And nothing in the recovery plan provisions of ESA §4(f) prevents the planning teams from seeking and selecting cost-effective measures. Those provisions do not require that recovery plan decisions be made "solely on the basis of the best scientific… information" as does §4(b)(1)(A) for listing decisions. Instead, they require disclosure of "the cost to carry out [the protective] measures."[31] Indeed, recovery plans could provide the "more structured decision-making process [that would] make the trade-offs inherent in species recovery more transparent and allow policymakers to be held accountable for these trade-offs."[32] Admittedly, legislative surgery would be required, but it would be much less intrusive and likely have a better prognosis than the removal of existing statutory protective mechanisms.

As noted above, recovery plans currently have no force and effect of law. The ESA would have to be amended to accord them that authority. This idea has not gained currency in previous ESA reauthorization efforts, primarily because the result would be to interpose the most stringent ESA standard—recovery—in the existing protective mechanisms, which currently apply less rigorous standards.[33] However, legislative interest might be piqued if the trade-off for making recovery plans enforceable was to be the ability to plan protections tailored to a more achievable standard. Perhaps most important from the standpoint of this Article is that, once the plans are so configured, the need to remove the present protective mechanisms diminishes. Instead, the relevant species-specific protections chosen in the recovery plans, and no longer automatically labeled recovery measures, would likely be incorporated into those mechanisms (e.g., §7 biological opinions and reasonable and prudent measures and §10 incidental take permits, safe harbor agreements, candidate conservation agreements, etc.).

Finally, many of the remedies suggested in the Article require a "reformed ESA,"[34] but the fate of S. 1180 should be instructive as to political consequences. The bill was authored by bi-partisan Senate and Committee leadership and had enjoyed the support of the Clinton Administration, organized labor, virtually the entire regulated community, and many environmental organizations. Yet, it never experienced a moment of floor debate in either congressional chamber. A conservative bill—H.R. 3824—survived a close vote in the House of Representatives in 2005 but was not even considered by a Senate Committee. These experiences strongly suggest that any call for an ESA "reform" effort would meet gale force resistance from members of Congress of all political stripes.

In short, Wyman displays a wide-ranging, provocative vision in raising critical questions not just about a particular environmental law but also about our fundamental capability to protect the environmental values the law addresses. That same vision, however, may have done her a disservice in proposing answers to those questions. The changes proposed in the legal regime are unnecessarily abrupt. Less severe changes may provide less elegant answers, but the proposed changes may engender political dissent that would fully frustrate any effort to pursue answers. That said, an admission: please take note that this Comment lacks any alternative vision to provide a comprehensive answer to sustain broad-scale, persistent biodiversity.

27. Wyman full-length, *supra* note 1, at 498-99.
28. *Id.* at 523.
29. Wyman ELPAR, *supra* note 1, at 10806.
30. *Id.* This question was raised and partially answered in the pioneering work of Michael Scott, Michael Bean and others in their proposal to recognize "conservation-reliant species." Michael Scott, Michael Bean, et al., *Recovery of Imperiled Species Under the Endangered Species Act: The Need for a New Approach*, 3 Frontiers in Ecology and the Env't 383 (2005).
31. 16 U.S.C. §1533(f)(1)(B)(iii).
32. Wyman ELPAR, *supra* note 1, at 10806.
33. The Services are not authorized to require the adoption by federal agencies of recovery measures in §7 consultations (where the standard is "not likely to jeopardize the [species'] continued existence") or by applicants in §10 incidental take permitting (where the standard is "to the maximum extent practicable, minimize and mitigate the impacts" of incidental takes). 16 U.S.C. §§1536(a)(2), 1539(a)(2)(B)(ii). The Services have acknowledged that recovery actions may not be imposed in either process. *See* 50 C.F.R. §402.14(j); United States Fish and Wildlife Service, Endangered Species Habitat Conservation Planning Handbook 3-20 (1995); Spirit of the Sage Council v. Kempthorne, 511 F. Supp. 2d 31, 42-44, 37 ELR 20235 (D.D.C. 2007) (acknowledging that recovery actions may not be imposed when dealing with either process).
34. Wyman ELPAR, *supra* note 1, at 10808.

RECENT DEVELOPMENTS

In the Congress

"In the Congress" entries cover activities reported in the *Congressional Record* from June 1, 2010, through June 30, 2010. Entries are arranged by bill number, with Senate bills listed first. "In the Congress" covers all environment-related bills that are introduced, reported out of committee, passed by either house, or signed by the president. "In the Congress" also covers all environmental treaties ratified by the Senate. This material is updated monthly. For archived materials, visit http://www.elr.info/NewsAnalysis/archive.cfm.

PUBLIC LAWS

S. 3473 (oil spill), which amends the Oil Pollution Act of 1990 to authorize advances from the Oil Spill Liability Trust Fund for the Deepwater Horizon oil spill, was signed into law on June 15, 2010. Pub. L. No. 111-191, 156 Cong. Rec. D666 (daily ed. June 16, 2010).

CHAMBER ACTION

S. 1660 (formaldehyde), which would amend TSCA to reduce the emissions of formaldehyde from composite wood products, was passed by the Senate, 156 Cong. Rec. S4891 (daily ed. June 14, 2010), and the House, 156 Cong. Rec. H4701-05 (daily ed. June 23, 2010).

S. 3473 (oil spill), which would amend the Oil Pollution Act of 1990 to authorize advances from the Oil Spill Liability Trust Fund for the Deepwater Horizon oil spill, was passed by the Senate, 156 Cong. Rec. S4744 (daily ed. June 9, 2010), and the House, 156 Cong. Rec. H4336, H4365 (daily ed. June 10, 2010).

H.R. 1061 (land transfer), which would transfer certain land to the United States to be held in trust for the Hoh Indian Tribe and to place land into trust for the Hoh Indian Tribe, was passed by the House. 156 Cong. Rec. H4222 (daily ed. June 8, 2010).

H.R. 2008 (hydroelectricity), which would authorize the Secretary of the Interior to facilitate the development of hydroelectric power on the Diamond Fork System of the Central Utah Project, was passed by the House. 156 Cong. Rec. H4222 (daily ed. June 8, 2010).

H.R. 4349 (hydroelectricity), which would further allocate and expand the availability of hydroelectric power generated at Hoover Dam, was passed by the House. 156 Cong. Rec. H4219 (daily ed. June 8, 2010).

H.R. 4451 (hydroelectricity), which would reinstate and transfer certain hydroelectric licenses and extend the deadline for commencement of construction of certain hydroelectric projects, was passed by the House. 156 Cong. Rec. H4542 (daily. ed. June 16, 2010).

H.R. 5481 (oil spill), which would give subpoena power to the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, was passed by the House. 156 Cong. Rec. H4721-28 (daily ed. June 23, 2010).

COMMITTEE ACTION

S. 1388 (hydroelectricity) was reported by the Committee on Indian Affairs. S. Rep. No. 111-204, 156 Cong. Rec. S4849 (daily ed. June 10, 2010). The bill would provide for equitable compensation to the Spokane Tribe of Indians of the Spokane Reservation for the use of tribal land for the production of hydropower by the Grand Coulee Dam.

S. 2724 (Lake Tahoe Basin) was reported by the Committee on Environment and Public Works. S. Rep. No. 111-211, 156 Cong. Rec. S5201 (daily ed. June 21, 2010). The bill would provide for environmental restoration activities and forest management activities in the Lake Tahoe Basin.

S. 2852 (renewable energy) was reported by the Committee on Commerce, Science, and Transportation. S. Rep. No. 111-206, 156 Cong. Rec. S4884 (daily ed. June 14, 2010). The bill would establish, within NOAA, an integrated and comprehensive ocean, coastal, Great Lakes, and atmospheric research, prediction, and environmental information program to support renewable energy.

S. 3362 (air pollution) was reported by the Committee on Environment and Public Works. S. Rep. No. 111-207, 156 Cong. Rec. S5153 (daily ed. June 18, 2010). The bill would amend the CAA to direct the Administrator of EPA to provide competitive grants to publicly funded schools to implement effective technologies to reduce air pollutants, including greenhouse gas emissions.

S. 3363 (water supply) was reported by the Committee on Environment and Public Works. S. Rep. No. 111-208, 156 Cong. Rec. S5153 (daily ed. June 18, 2010). The bill would amend the Water Resources Research Act of 1984 to reauthorize grants for and require applied water supply research regarding the water resources research and technology institutes established under that Act.

S. 3372 (water pollution) was reported by the Committee on Environment and Public Works. S. Rep. No. 111-209, 156 Cong. Rec. S5153 (daily ed. June 18, 2010). The bill would modify the date on which the Administrator of EPA and applicable states may require permits for discharges from certain vessels.

S. 3373 (air pollution) was reported by the Committee on Environment and Public Works. S. Rep. No. 111-218, 156 Cong. Rec. S5536 (daily ed. June 29, 2010). The bill would address the health and economic development impacts of

nonattainment of federally mandated air quality standards in San Joaquin Valley, California, by designating air quality empowerment zones.

S. 3466 (water pollution) was reported by the Committee on the Judiciary. 156 Cong. Rec. S5438 (daily ed. June 24, 2010). The bill would require restitution for victims of criminal violations of the Federal Water Pollution Control Act.

H.R. 1554 (land use) was reported by the Committee on Natural Resources. H. Rep. No. 111-513, 156 Cong. Rec. H4904 (daily ed. June 28, 2010). The bill would require the Secretary of the Interior to transfer land in McIntosh County, Oklahoma, to the Muscogee Creek Tribe, and require the tribe to pay fair market value for the land.

H.R. 4451 (hydroelectricity) was reported by the Energy and Commerce Committee. H. Rep. No. 111-505, 156 Cong. Rec. H4424 (daily ed. June 14, 2010). The bill would reinstate and transfer certain hydroelectric licenses and extend the deadline for commencement of construction of certain hydroelectric projects.

H.R. 4805 (formaldehyde) was reported by the Committee on Energy and Commerce. H. Rep. No. 111-509, Pt. 1, 156 Cong. Rec.H4676 (daily ed. June 22, 2010). The bill would amend TSCA to reduce the emissions of formaldehyde from composite wood products.

H.R. 5503 (oil spill) was reported by the Committee on the Judiciary. H. Rep. No. 111-521, 156 Cong. Rec. H5302 (daily ed. June 30, 2010). The bill would repeal certain limitations on liability in the Oil Pollution Act of 1990.

BILLS INTRODUCED

S. 3457 (Levin, D-Mich.) (energy) would allow for the development of energy parks on former nuclear defense facilities and authorize additional defense funds. 156 Cong. Rec. S4621 (daily ed. June 7, 2010). The bill was referred to the Committee on Armed Services.

S. 3460 (Sanders, I-Vt.) (solar power) would require the Secretary of Energy to provide funds to states for rebates, loans, and other incentives to eligible individuals or entities for the purchase and installation of solar energy systems for properties located in the United States. 156 Cong. Rec. S4621 (daily ed. June 7, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3461 (Vitter, R-La.) (oil spill) would create a system to resolve claims of victims for economic injury caused by the Deepwater Horizon incident and direct the Secretary of the Interior to renegotiate the terms of the lease known as "Mississippi Canyon 252" with respect to claims relating to the Deepwater Horizon explosion and oil spill that exceed existing applicable economic liability limitations. 156 Cong. Rec. S4621 (daily ed. June 7, 2010). The bill was referred to the Committee on the Judiciary.

S. 3462 (Shaheen, D-N.H.) (oil spill) would provide subpoena power to the National Commission on the British Petroleum Oil Spill in the Gulf of Mexico. 156 Cong. Rec. S4358 (daily ed. June 8, 2010). The bill was referred to the Committee on the Judiciary.

S. 3464 (Lugar, R- Ind.) (energy and climate) would establish an energy and climate policy framework to reach measurable gains in reducing dependence on foreign oil. 156 Cong. Rec. S4744 (daily ed. June 9, 2010). The bill was referred to the Committee on Finance.

S. 3466 (Leahy, D-Vt.) (water pollution) would require restitution for victims of criminal violations of the Federal Water Pollution Control Act. 156 Cong. Rec. S4744 (daily ed. June 9, 2010). The bill was referred to the Committee on the Judiciary.

S. 3470 (Alexander, R-Tenn.) (land use) would designate as wilderness certain public land in the Cherokee National Forest in the state of Tennessee.156 Cong. Rec. S4745 (daily ed. June 9, 2010). The bill was referred to the Committee on Agriculture, Nutrition, and Forestry.

S. 3472 (Menendez, D-N.J.) (oil spill) would amend the Oil Pollution Act of 1990 to require oil polluters to pay the full costs of oil spills. 156 Cong. Rec. S4745 (daily ed. June 9, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3481 (Cardin, D-Md.) (water pollution) would amend the Federal Water Pollution Control Act to clarify federal responsibility for stormwater pollution. 156 Cong. Rec. S4850 (daily ed. June 10, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3482 (Reid, D-Nev.) (solar power) would provide for the development of solar pilot project areas on public land in Lincoln County, Nevada. 156 Cong. Rec. S4850 (daily ed. June 10, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3487 (Udall, D-Colo.) (energy efficiency) would amend the Public Utility Regulatory Policies Act of 1978 to add the right to access electric energy information, including consumer's individual energy usage. 156 Cong. Rec. S4938 (daily ed. June 15, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3489 (Vitter, R-La.) (deepwater drilling) would end the moratorium on deepwater drilling issued by the Secretary of the Interior. 156 Cong. Rec. S4938 (daily ed. June 15, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3492 (Lautenberg, D-N.J.) (offshore drilling) would amend the Outer Continental Shelf Lands Act to require the drilling of emergency relief wells. 156 Cong. Rec. S4938 (daily ed. June 15, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3495 (Dorgan, D-N.J.) (electric cars) would promote the deployment of plug-in electric drive vehicles.156 Cong. Rec. S4938 (daily ed. June 15, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3497 (Brown, R-Mass.) (oil spill) would amend the Outer Continental Shelf Lands Act to require leases entered into under that Act to include a plan that describes the means and time line for containment and termination of an ongoing discharge of oil. 156 Cong. Rec.

S4989 (daily ed. June 16, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3508 (Udall, D-Colo.) (renewable energy) would seek to strengthen the capacity of the United States to lead the international community in reversing renewable natural resource degradation trends around the world that threaten to undermine global prosperity and security and eliminate the diversity of life on earth. 156 Cong. Rec. S5112 (daily ed. June 17, 2010). The bill was referred to the Committee on Foreign Relations.

S. 3509 (Udall, D-Colo.) (gas extraction) would amend the Energy Policy Act of 2005 to promote the research and development of technologies and best practices for the safe development and extraction of natural gas and other petroleum resources. 156 Cong. Rec. S5112 (daily ed. June 17, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3511 (Dorgan, D-N.D.) (electric cars) would promote the deployment of plug-in electric drive vehicles. 156 Cong. Rec. S5153 (daily ed. June 18, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3514 (Begich, D-Alaska) (oil spill) would amend the Outer Continental Shelf Lands Act to prohibit a person from entering into any federal oil or gas lease or contract unless the person pays into an Oil Spill Recovery Fund, or posts a bond, in an amount equal to the total of the outstanding liability of the person and any removal costs incurred by, or on behalf of, the person with respect to any oil discharge for which the person has outstanding liability. 156 Cong. Rec. S5201 (daily ed. June 21, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3515 (Shaheen, D-N.H.) (oil spill) would authorize and enhance the programs of the DOI relating to the detection of, response to, and mitigation and cleanup of oil spills on federal land managed by the Department. 156 Cong. Rec. S5202 (daily ed. June 21, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3516 (Bingaman, D-N.M.) (oil spill) would amend the Outer Continental Shelf Lands Act to reform the management of energy and mineral resources on the outer continental shelf. 156 Cong. Rec. S5202 (daily ed. June 21, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3521 (Murkowski, R-Alaska) (rare earth materials) would provide for the reestablishment of a domestic rare earths materials production and supply industry in the United States. 156 Cong. Rec. S5268 (daily ed. June 22, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3528 (Snowe, R-Me.) (fisheries) would promote coastal jobs creation, promote sustainable fisheries and fishing communities, and revitalize waterfronts. 156 Cong. Rec. S5439 (daily ed. June 24, 2010). The bill was referred to the Committee on Commerce, Science, and Transportation.

S. 3532 (Dodd, D-Conn.) (hydroelectricity) would reinstate and transfer certain hydroelectric licenses and extend the deadline for commencement of construction of certain hydroelectric projects. 156 Cong. Rec. S5439 (daily ed. June 24, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3535 (Burr, R-N.C.) (renewable energy) would promote the production of natural gas, nuclear energy, and renewable energy.156 Cong. Rec. S5439 (daily ed. June 24, 2010). The bill was referred to the Committee on Finance.

S. 3537 (Udall, D-Colo.) (land exchange) would provide for certain land exchanges in Gunnison County, Colorado, and Uintah County, Utah. 156 Cong. Rec. S5439 (daily ed. June 24, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3539 (Feinstein, D-Cal.) (water pollution) would amend the Federal Water Pollution Control Act to establish a grant program to assist in the restoration of San Francisco Bay. 156 Cong. Rec. S5461 (June 25, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3540 (Whitehouse, D-R.I.) (estuaries) would amend the Federal Water Pollution Control Act to reauthorize the National Estuary Program. 156 Cong. Rec. S5488 (daily ed. June 28, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3541 (Feinstein, D-Cal.) (deepwater drilling) would prohibit royalty incentives for deepwater drilling. 156 Cong. Rec. S5489 (daily ed. June 28, 2010). The bill was referred to the Committee on Energy and Natural Resources.

S. 3545 (Landrieu, D-La.) (deepwater drilling) would require a study of the effect of a six-month moratorium on new deepwater drilling in the Gulf of Mexico on small businesses. 156 Cong. Rec. S5538 (daily ed. June 29, 2010). The bill was referred to the Committee on Small Business and Entrepreneurship.

S. 3550 (Merkley, D-Or.) (water pollution) would amend the Federal Water Pollution Control Act to establish within EPA a Columbia Basin Restoration Program. 156 Cong. Rec. S5538 (daily ed. June 29, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3553 (Stabenow, D-Mich.) (hydrological separation) would require the Secretary of the Army to study the feasibility of the hydrological separation of the Great Lakes and Mississippi River Basin. 156 Cong. Rec. S5699 (daily ed. June 30, 2010). The bill was referred to the Committee on Environment and Public Works.

S. 3561 (Udall, D-N.M.) (infrastructure) would establish centers of excellence for green infrastructure. 156 Cong. Rec. S5699 (daily ed. June 30, 2010). The bill was referred to the Committee on Environment and Public Works.

H.R. 5478 (Blumenauer, D-Or.) (railcar fuel efficiency) would provide tax incentives for the replacement of outdated freight railcars with more fuel-efficient vehicles. 156 Cong. Rec. H4246 (daily ed. June 8, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5481 (Capps, D-Cal.) (oil spill) would give subpoena power to the National Commission on the BP Deepwater

Horizon Oil Spill and Offshore Drilling. 156 Cong. Rec. S4358 (daily ed. June 8, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5482 (Jones, R-N.C.) (wildlife) would direct the Secretary of the Interior to enter into an agreement to provide for management of the free-roaming wild horses in and around the Currituck National Wildlife Refuge. 156 Cong. Rec. S4358 (daily ed. June 8, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5487 (Napolitano, D-Cal.) (water supply research) would amend the Water Resources Research Act of 1984 to reauthorize grants for and require applied water supply research regarding the water resources research and technology institutes established under that Act. 156 Cong. Rec. H4330 (daily ed. June 8, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5494 (Norton, D-D.C.) (land transfer) would direct the Director of the National Park Service and the Secretary of the Interior to transfer certain properties to the District of Columbia. 156 Cong. Rec. H4330 (daily ed. June 8, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5499 (Mica, R-Fla.) (oil spill) would amend the Oil Pollution Act of 1990 to authorize advances from Oil Spill Liability Trust Fund for the Deepwater Horizon oil spill. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5505 (Burgess, R-Tex.) (nuclear energy) would authorize the Secretary of Energy to establish monetary prizes for achievements in designing and proposing nuclear energy used fuel alternatives. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Science and Technology.

H.R. 5506 (Connolly, D-Va.) (offshore drilling) would amend the Outer Continental Shelf Lands Act to require that treatment of the issuance of any exploration plans, development production plans, development operation coordination documents, and lease sales required under federal law for offshore drilling activity on the outer continental shelf as a major federal action under NEPA. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5507 (Heller, R-Nev.) (renewable energy) would require the Secretary of Defense to identify areas on military installations and certain other properties as acceptable, unacceptable, or unassessed regarding their suitability for placement of geothermal, wind, solar photovoltaic, or solar thermal trough systems. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Armed Services.

H.R. 5508 (Heller, R-Nev.) (solar power) would provide for the development of solar pilot project areas on public land in Lincoln County, Nevada. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5509 (Holden, D-Pa.) (Chesapeake Bay) would support efforts to reduce pollution of the Chesapeake Bay watershed and to verify that reductions in pollution have been achieved. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5513 (Pedigree, R-Me.) (offshore drilling) would amend the Outer Continental Shelf Lands Act to require payment of royalty on all oil and gas saved, removed, sold, or discharged under a lease under that Act. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Natural Resourc es.

H.R. 5518 (Titus, D-Nev.) (energy investment tax credit) would amend the Internal Revenue Code of 1986 to allow the energy investment tax credit and the credit for residential energy-efficient property with respect to natural gas heat pumps. 156 Cong. Rec. H4386 (daily ed. June 10, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5519 (Cassidy, R-La.) (deepwater drilling) would terminate the moratorium on deepwater drilling and require the Secretary of the Interior to ensure the safety of deepwater drilling operations. 156 Cong. Rec. H4424 (daily ed. June 14, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5520 (Kagen, D-Wis.) (oil spill) would require immediate payment by BP to the United States for use to compensate all affected persons for removal costs and damages arising from the explosion and sinking of Deepwater Horizon, and would make that amount available to the Secretary of the Interior to pay such compensation. 156 Cong. Rec. H4424 (daily ed. June 14, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5521 (Castle, R-Del.) (wind power) would extend credits related to the production of electricity from offshore wind.156 Cong. Rec. H4424 (daily ed. June 14, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5525 (Olson, R-Tex.) (deepwater drilling) would terminate the moratorium on deepwater drilling issued by the Secretary of the Interior. 156 Cong. Rec. H4505 (daily ed. June 15, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5531 (Herger, R-Cal.) (endangered species) would amend the ESA to enable federal agencies responsible for the preservation of threatened species and endangered species to rescue and relocate members of any of those species that would be taken in the course of certain reconstruction, maintenance, or repair of federal or nonfederal man-made flood control levees. 156 Cong. Rec. H4506 (daily ed. June 15, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5572 (Buchanan, R-Fla.) (offshore drilling) would reform the Minerals Management Service and offshore drilling for oil and gas to repeal the limitation of liability of a responsible party for discharge of oil from an offshore facility. 156 Cong. Rec. H4677 (daily ed. June 22, 2010). The bill was referred to the Committee on Natural Resources and the Committee on Transportation and Infrastructure.

H.R. 5581 (Kind, D-Wis.) (biogas) would amend the Internal Revenue Code of 1986 to make qualified biogas prop-

erty eligible for the energy credit and to permit new clean renewable energy bonds to finance qualified biogas property. 156 Cong. Rec. H4779 (daily ed. June 23, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5607 (Markey, D-Mass.) (oil spill) would provide for the establishment of a program to support the development, demonstration, and commercialization of innovative technologies to prevent, stop, or capture large-scale accidental discharges of oil or other hydrocarbons from offshore oil and gas drilling operations, including deepwater and ultra-deepwater operations. 156 Cong. Rec. H4876 (daily ed. June 25, 2010). The bill was referred to the Committee on Science and Technology.

H.R. 5608 (Markey, D-Mass.) (oil spill) would amend the Federal Water Pollution Control Act and the Outer Continental Shelf Lands Act to improve oil spill response plans. 156 Cong. Rec. H4876 (daily ed. June 25, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5612 (Blumenauer, D-Or.) (geothermal energy) would amend the Internal Revenue Code of 1986 to temporarily increase the investment tax credit for geothermal energy property. 156 Cong. Rec. H4904 (daily ed. June 28, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5617 (McDermott, D-Wash.) (energy conservation) would amend the Internal Revenue Code of 1986 to provide for home energy conservation bonds. 156 Cong. Rec. H4904 (daily ed. June 28, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5621 (Linda Sanchez, D-Cal.) (environmental review) would amend the Water Resources Development Act of 1986 to authorize funds in the Harbor Maintenance Trust Fund to be used to pay up to 100 percent of the eligible costs of preparing federal EISs for certain navigation projects. 156 Cong. Rec. H4905 (daily ed. June 28, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5625 (Camp, R-Mich.) (hydrological separation) would require the Secretary of the Army to study the feasibility of the hydrological separation of the Great Lakes and Mississippi River Basins. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5626 (Waxman, D-Cal.) (drilling) would require the use of safe well control technologies and practices for the drilling of high-risk oil and gas wells in the United States. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Natural Resources.

H.R. 5629 (Oberstar, D-Minn.) (oil spill) would attempt to ensure full recovery from responsible parties of damages for physical and economic injuries, adverse effects on the environment, and cleanup of oil spill pollution; improve the safety of vessels and pipelines supporting offshore oil drilling; and ensure that there are adequate response plans to prevent environmental damage from oil spills. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committees on Transportation and Infrastructure, the Judiciary, and Natural Resources.

H.R. 5631 (Hastings, D-Fla.) (oil spill) would establish the Gulf Coast Conservation Corps under the direction of the president in order to create jobs cleaning up the oil spill and restoring the Gulf of Mexico and surrounding areas. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Education and Labor, and in addition to the Committee on Transportation and Infrastructure.

H.R. 5634 (Inlee, D-Wash.) (offshore drilling) would amend the Outer Continental Shelf Lands Act to require that oil and gas drilling and production operations on the outer continental shelf must have in place the best available technology for blowout preventers and emergency shutoff equipment. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Natural Resources and the Committee on Energy and Commerce.

H.R. 5635 (Maffei, D-N.Y.) (water pollution) would amend the Federal Water Pollution Control Act to direct the Administrator of EPA to carry out activities for the restoration, conservation, and management of Onondaga Lake, New York. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Transportation and Infrastructure.

H.R. 5638 (Sestak, D-Pa.) (energy tax credit) would amend the Internal Revenue Code of 1986 to extend the qualifying advanced energy project credit. 156 Cong. Rec. H4974 (daily ed. June 29, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5643 (DeFazio, D-Or.) (toxic substances) would amend TSCA to prohibit the use, production, sale, importation, or exportation of the poison sodium fluoroacetate and to prohibit the use of sodium cyanide for predator control. 156 Cong. Rec. H5302 (daily ed. June 30, 2010). The bill was referred to the Committee on Energy and Commerce.

H.R. 5644 (Blumenauer, D-Or.) (oil subsidies) would amend the Internal Revenue Code of 1986 to repeal fossil fuel subsidies for large oil companies. 156 Cong. Rec. H5302 (daily ed. June 30, 2010). The bill was referred to the Committee on Ways and Means.

H.R. 5657 (Quigley, D-Ill.) (offshore drilling) would amend the Outer Continental Shelf Lands Act to ensure that protection of the marine and coastal environment is of primary importance in making areas of the outer continental shelf available for leasing, exploration, and development rather than expeditious development of oil and gas resources and to prohibit oil and gas leasing, exploration, and development in important ecological areas of the outer continental shelf. 156 Cong. Rec. H5302 (daily ed. June 30, 2010). The bill was referred to the Committee on Natural Resources.

H. Res. 1466 (Sensenbrenner, R-Wis.) (nuclear waste) would request the president and direct the Secretary of Energy to provide certain documents to the House of Representatives relating to DOE's application to foreclose use of Yucca Mountain as a high-level nuclear waste repository. 156 Cong. Rec. H4677 (daily ed. June 22, 2010). The resolution was referred to the Committee on Energy and Commerce.

In the Courts

These entries summarize recent cases under the following categories: Air, Chemical Regulation, Hazardous & Solid Wastes/Substances, Land Use, Radioactive Waste, Water, Wildlife, and Miscellaneous. The entries are arranged alphabetically by case name within each category. This material is updated monthly. For archived materials, visit http://www.elr.info/NewsAnalysis/archive.cfm.

AIR

Appalachian Voices v. State Air Pollution Control Board, No. 2199-09-2, 40 ELR 20150 (Va. Ct. App. May 25, 2010). The Virginia Court of Appeals upheld a lower court decision affirming a decision of the State Air Pollution Control Board to issue a PSD permit allowing an electric company to build and operate a coal-fired electric generating plant.

Center for Biological Diversity v. San Bernardino, County of, Nos. D056652, D056648, 40 ELR 20146 (Cal. App. 4th Dist. May 25, 2010) A California appellate court upheld a lower court decision decertifying a county's environmental impact report for an open-air human waste composting facility under the California Environmental Quality Act.

CHEMICAL REGULATION

Comer v. Murphy Oil USA, No. 07-60756, 40 ELR 20147 (5th Cir. May 28, 2010). The Fifth Circuit vacated an earlier ruling in which a panel reversed a lower court decision dismissing Mississippi residents' class action lawsuit against several energy, fossil fuel, and chemical companies for their alleged contribution to climate change.

HAZARDOUS & SOLID WASTES/SUBSTANCES

Lyondell Chemical Co. v. Occidental Chemical Co., No. 08-40060, 40 ELR 20152 (5th Cir. June 8, 2010). The Fifth Circuit affirmed in part a lower court's equitable allocation of costs among various parties involved in the cleanup of a hazardous waste dump near the Houston Ship Channel.

Raritan Baykeeper, Inc. v. NL Industries, Inc. No. 09-4117, 40 ELR 20156 (D.N.J. May 26, 2010). A district court dismissed, on grounds of abstention, an environmental group's RCRA and CWA citizen suit against a company seeking remediation of contaminated sediments in the Raritan River located adjacent to a site formerly owned by the company.

United States v. Aerojet General Corp., No. 08-55996, 40 ELR 20151 (9th Cir. June 2, 2010). The Ninth Circuit held that a nonsettling PRP may intervene in litigation to oppose a consent decree incorporating a settlement that, if approved, would bar contribution from the settling PRP.

LAND USE

Habitat Education Center v. United States Forest Service, No. 09-2785, 40 ELR 20145 (7th Cir. May 27, 2010). The Seventh Circuit upheld a lower court decision denying an environmental group's request to rescind or modify a court order requiring it to post a $10,000 bond after it asked for and was granted a preliminary injunction preventing the U.S. Forest Service from allowing several thousand acres of a national forest in Wisconsin to be logged.

Hydro Resources, Inc. v. United States Environmental Protection Agency, No. 07-9506, 40 ELR 20158 (10th Cir. June 15, 2010). The Tenth Circuit vacated EPA's final land status determination that a company's land qualified as "Indian land" and, thus, was required to obtain a mining permit under the SDWA from EPA rather than from New Mexico's environmental agency.

Stop the Beach Renourishment Inc. v. Florida Department of Environmental Protection, No. 08-1151, 40 ELR 20160 (U.S. June 17, 2010) The U.S. Supreme Court held that a beach restoration project under Florida's Beach and Shore Preservation Act did not unconstitutionally deprive beachfront property owners of littoral rights without just compensation.

RADIOACTIVE WASTE

Alabama v. North Carolina, No. 132, 40 ELR 20148 (U.S. June 1, 2010). The U.S. Supreme Court held that North Carolina should not be held liable or subject to monetary sanctions for failing to fulfill its obligations to an interstate radioactive waste compact.

WATER

Anacostia Riverkeeper, Inc. v. Jackson, No. 09-0098, 40 ELR 20149 (D.D.C. May 25, 2010). A district court vacated certain TMDLs promulgated by EPA for the waters of the District of Columbia, but issued a stay of vacatur in order to permit EPA an opportunity to correct the deficient TMDLs.

Butte Environmental Council v. United States Army Corps of Engineers, No. 09-15363, 40 ELR 20144 (9th Cir. June 1, 2010). The Ninth Circuit upheld the U.S. Army Corps of Engineers' and the FWS' approval of a business park construction project on protected wetlands in California.

Catchpole v. Wagner, No. 09-5065, 40 ELR 20155 (W.D. Wash. June 1, 2010). A district court dismissed a property owner's CWA citizen suit against his neighbor for grading an easement area that contains wetlands.

Ohio Valley Environmental Coalition, Inc. v. Hobet Mining LLC, No. 3:09-1167 , 40 ELR 20161 (S.D. W. Va. June 14, 2010).

A district court denied a mining company's motion to dismiss environmental groups' CWA and SMCRA citizen suit against it for violating its NPDES and mining permits and held that the groups are entitled to injunctive relief.

TWC Storage, LLC v. State Water Resources Control Board, No. H033228, 40 ELR 20153 (Cal. App. 6th Dist. June 3, 2010). A California appellate court affirmed a lower court's denial of a petition challenging a regional water board's imposition of a $25,000 fine against a company for a chemical spill on its property that infiltrated the groundwater.

WILDLIFE

Arizona Cattle Growers' Ass'n v. Salazar, No. 08-15810, 40 ELR 20154 (9th Cir. June 4, 2010). The Ninth Circuit upheld the FWS' designation of critical habitat for the Mexican spotted owl.

MISCELLANEOUS

Commuter Rail Division v. Surface Transportation Board, No. 08-1346, 40 ELR 20157 (D.C. Cir. June 15, 2010). The D.C. Circuit denied two petitions challenging the Surface Transportation Board's approval of the acquisition of certain railroads by another railroad.

Norfolk Southern Railway Co. v. Alexandria, City of, Nos. 09-1566, -1608, 40 ELR 20159 (4th Cir. June 16, 2010). The Fourth Circuit held that the Interstate Commerce Commission Termination Act preempts a city ordinance and haul permit that regulate ethanol transloading at a railway's facility in Virginia.

In re Transocean Holdings LLC, No. 3:09-1167, 40 ELR 20162 (S.D. Tex. June 14, 2010). A district court issued an order stipulating that environmental claims against the owner of Deepwater Horizon may go forward in court.

In the Federal Agencies

These entries cover the period June 1, 2010, through June 30, 2010. Citations are to the *Federal Register* (FR). Entries below are organized by Final Rules, Proposed Rules, and Notices. Within each section, entries are further subdivided by subject matter area, with entries listed chronologically. This material is updated monthly. For archived materials, visit http://www.elr.info/NewsAnalysis/archive.cfm.

Final Rules

AIR

EPA amended the NESHAPs for the paints and allied products manufacturing area source rule promulgated December 3, 2009. 75 FR 31317 (6/3/10).

EPA issued the PSD and Title V Greenhouse Gas Tailoring Rule, which sets forth the applicability criteria that determine which stationary sources and modification projects are subject to permitting requirements for greenhouse gas emissions under the two CAA programs. 75 FR 31514 (6/3/10).

EPA found that 29 states or territories failed to meet attainment and maintenance requirements related to the interstate transport of pollution and set a two-year deadline for compliance. 75 FR 32673 (6/9/10).

EPA expanded the list of acceptable substitutes for ozone-depleting substances under the Significant New Alternatives Policy program for use in refrigeration and air-conditioning, foam blowing, aerosols, and sterilants. 75 FR 34017 (6/16/10).

EPA gave final approval to Rhode Island's air emission standards for halogenated solvent cleaning machines. 75 FR 34647 (6/18/10).

EPA established a new one-hour primary NAAQS for sulfur dioxide. 75 FR 35520 (6/22/10).

SIP Approvals: California (continuous emission monitoring system standards for the South Coast air quality management district) 75 FR 32293 (6/8/10); (Yolo-Solano air quality management district) 75 FR 37308 (6/29/10); (disapproval of opacity standards revision for the Monterey Bay unified air pollution control district) 75 FR 37727 (6/30/10). Colorado (partial approval of 1997 eight-hour ozone NAAQS revisions) 75 FR 31306 (6/3/10). Delaware (nitrogen oxide emissions from industrial boilers) 75 FR 31711 (6/4/10). Maryland (1997 eight-hour ozone NAAQS revisions for the Baltimore moderate nonattainment area) 75 FR 31709 (6/4/10); (2002 base-year emissions inventory, reasonable further progress plan, contingency and reasonably available control measures, and transportation conformity motor vehicle emissions budgets for the Philadelphia moderate 1997 eight-hour ozone nonattainment area) 75 FR 33172 (6/11/10); (transportation conformity regulations) 75 FR 34644 (6/18/10). New Mexico (interstate transport of pollution) 75 FR 33174 (6/11/10). North Dakota (PSD rules and interstate transport of air pollution) 75 FR 31290 (6/3/10). Ohio (carbon monoxide and volatile organic compound (VOC) regulations) 75 FR 34939 (6/21/10). Rhode Island (attainment of the 1997 eight-hour ozone NAAQS for the Providence moderate nonattainment area) 75 FR 31288 (6/3/10).

SIP Withdrawal: Wisconsin (particulate matter (PM) rule of April 8, 2010) 75 FR 30710 (6/2/10).

ENERGY

EPA and the U.S. Coast Guard suspended oil spill response time, identification, and location requirements to assist in response efforts related to the Deepwater

Horizon oil spill in the Gulf of Mexico. 75 FR 37712 (6/30/10).

EPA withdrew several provisions of the Renewable Fuel Standard program promulgated on May 10, 2010, due to adverse comment. 75 FR 37733 (6/30/10).

HAZARDOUS & SOLID WASTE

EPA withdrew the "emission comparable fuel" exclusion under RCRA; the Agency concluded that emission comparable fuel is more appropriately classified as a discarded material and regulated as a hazardous waste. 75 FR 33712 (6/15/10).

EPA gave final authorization to Massachusetts' hazardous waste management program. 75 FR 35660 (6/23/10).

EPA gave final authorization to Arkansas' hazardous waste management program. 75 FR 36538 (6/28/10).

EPA gave final authorization to Oklahoma's hazardous waste management program. 75 FR 36546 (6/28/10).

PESTICIDES

EPA amended the pesticide container and containment regulations by extending until December 16, 2010, the compliance deadline for label requirements. 75 FR 33705 (6/15/10).

TOXIC SUBSTANCES

EPA promulgated significant new use rules under TSCA for 17 chemical substances that were the subject of premanufacture notices. 75 FR 35977 (6/24/10).

WATER

EPA announced approval of 12 alternative testing methods to measure the levels of contaminants in drinking water and to determine compliance with national primary drinking water regulations. 75 FR 32295 (6/8/10).

WILDLIFE

NOAA-Fisheries issued a final rule establishing take prohibitions for the threatened southern distinct population segment of North American green sturgeon. 75 FR 30714 (6/2/10).

FWS determined endangered status under the ESA for two species of Hawaiian damselflies. 75 FR 35990 (6/24/10).

FWS established regulations for seasons, harvest limits, methods, and means related to taking of wildlife for subsistence uses in Alaska during the 2010-2011 and 2011-2012 regulatory years. 75 FR 37918 (6/30/10).

Proposed Rules

AIR

EPA proposed NESHAPs for the industrial boiler and the commercial and institutional boiler area source categories. 75 FR 31896 (6/4/10).

EPA adopted new source performance standards and emission guidelines for commercial and industrial solid waste incineration units. 75 FR 31938 (6/4/10).

EPA, in response to a 2007 D.C. Circuit Court vacatur and remand of NESHAPs for industrial/commercial/institutional boilers and process heaters, proposed that all major sources meet NESHAPs that reflect application of the maximum achievable control technology. 75 FR 32006 (6/4/10).

EPA proposed revisions to the standards of performance for new stationary compression ignition internal combustion engines. 75 FR 32612 (6/8/10).

EPA proposed to amend its Protocol Gas Verification Program and the minimum competency requirements for air emission testing to improve the accuracy of emissions data. 75 FR 33392 (6/11/10).

EPA proposed to amend specific provisions in the 2009 Final Mandatory Greenhouse Gas Reporting Rule to correct certain technical and editorial errors that have been identified since promulgation and to clarify or propose minor updates to certain provisions that have been the subject of questions from reporting entities. 75 FR 33950 (6/15/10).

EPA proposed to approve Rhode Island's air emission standards for halogenated solvent cleaning machines; see above for direct final rule. 75 FR 34673 (6/18/10).

EPA proposed to amend the NPDES permit program to require that only "sufficiently sensitive" analytical test methods be used for application and monitoring requirements. 75 FR 35712 (6/23/10).

EPA proposed to approve California's request to redesignate to attainment the Coso Junction planning area. 75 FR 36023 (6/24/10).

SIP Proposals: Alabama (attainment of the 2006 24-hour fine PM NAAQS for the Birmingham nonattainment area) 75 FR 33562 (6/14/10). California (continuous emission monitoring system standards for the South Coast air quality management district; see above for direct final rule) 75 FR 32353 (6/8/10). Connecticut (attainment of the 1997 eight-hour ozone NAAQS for the greater Connecticut moderate nonattainment area) 75 FR 30310 (6/1/10). Delaware (1997 8-hour ozone and $PM_{2.5}$) NAAQS and 2006 $PM_{2.5}$ NAAQS) 75 FR 31340 (6/3/10); (control of VOCs) 75 FR 34671 (6/18/10). Maryland (transportation conformity regulations; see above for direct final rule) 75 FR 34669 (6/18/10).

HAZARDOUS & SOLID WASTE

EPA proposed a definition for nonhazardous secondary materials that are used as fuels or ingredients in combustion units to determine whether they should be considered "solid waste" under RCRA. 75 FR 31844 (6/4/10).

EPA proposed giving final authorization to Washington's hazardous waste management program. 75 FR 34674 (6/18/10).

EPA proposed to regulate coal combustion residuals under RCRA to address the risks from their disposal at electric

utilities and independent power producers. 75 FR 35128 (6/21/10).

EPA proposed giving final authorization to Massachusetts' hazardous waste management program; see above for direct final rule. 75 FR 35720 (6/23/10).

EPA proposed giving final authorization to Arkansas' hazardous waste management program; see above for direct final rule. 75 FR 36609 (6/28/10).

EPA proposed giving final authorization to Oklahoma's hazardous waste management program; see above for direct final rule. 75 FR 36609 (6/28/10).

MINING

OSM announced receipt of a request to remove a required amendment under SMCRA on cessation orders from Pennsylvania's regulatory program and requested comment. 75 FR 34960 (6/21/10).

OSM announced receipt of a proposed amendment to Pennsylvania's regulatory program under SMCRA that adds another category to the list of preferred sites and requested comment. 75 FR 34962 (6/21/10).

PESTICIDES

EPA proposed to amend the pesticide container and containment regulations by extending the date for compliance with label requirements until August 16, 2011; see above for direct final rule. 75 FR 33744 (6/15/10).

RADIOACTIVE WASTE

The NRC proposed security requirements for the use and transport of Category 1 and Category 2 quantities of radioactive material to provide additional protection against theft or diversion. 75 FR 33902 (6/15/10).

WILDLIFE

FWS proposed to remove the Lake Erie watersnake from the list of threatened and endangered wildlife under the ESA due to its recovery. 75 FR 30319 (6/1/10).

FWS announced a 12-month finding on a petition to list the white-tailed prairie dog as endangered or threatened under the ESA; the Agency found that listing is not warranted. 75 FR 30338 (6/1/10).

FWS announced a 12-month finding on a petition to remove the Sacramento Mountains thistle from the list of threatened and endangered plants under the ESA; the Agency found that delisting is not warranted. 75 FR 30757 (6/2/10).

FWS proposed to designate 1,957 acres in Forrest, Harrison, Jackson, and Perry Counties, Mississippi, as critical habitat for the Mississippi gopher frog. 75 FR 31387 (6/3/10).

FWS announced a 90-day finding on a petition to list the van Rossem's gull-billed tern as an endangered or threatened species under the ESA and to designate critical habitat; the Agency found that listing may be warranted and initiated a status review. 75 FR 32728 (6/9/10).

FWS announced a 90-day finding on a petition to list a distinct population segment of the gray wolf in five northeastern states as endangered under the ESA; the Agency found that listing is not warranted. 75 FR 32869 (6/10/10).

FWS announced a 90-day finding on five petitions to list seven species of Hawaiian yellow-faced bees as endangered and to designate critical habitat under the ESA; the Agency found that listing may be warranted and initiated a status review. 75 FR 34077 (6/16/10).

FWS announced a 12-month finding on a petition to list the least chub as threatened or endangered and to designate critical habitat under the ESA; the Agency found that listing is warranted but precluded by higher priority actions. 75 FR 35398 (6/22/10).

FWS proposed to reclassify the tulotoma snail from endangered to threatened under the ESA due to a substantial improvement in the species' distribution and numbers. 75 FR 35424 (6/22/10).

FWS proposed to list the plant Pagosa skyrocket as endangered under the ESA throughout its range in southwestern Colorado and to list the plants Parachute beardtongue and DeBeque phacelia as threatened under the ESA throughout their ranges in western Colorado. 75 FR 35721 (6/23/10).

FWS announced a 90-day finding on a petition to list the Honduran emerald hummingbird as endangered under the ESA; the Agency found that listing may be warranted and initiated a status review. 75 FR 35746 (6/23/10).

FWS proposed to designate approximately 25 acres as critical habitat for the Tumbling Creek cavesnail in Taney County, Missouri. 75 FR 35751 (6/23/10).

FWS proposed to list the Cumberland darter, rush darter, yellowcheek darter, chucky madtom, and laurel dace as endangered under the ESA. 75 FR 36035 (6/24/10).

FWS proposed to reinstate its December 5, 2002, proposal to list the mountain plover as threatened under the ESA and requested public comment. 75 FR 37353 (6/29/10).

Notices

AIR

EPA announced the availability of a final document titled, *Quantitative Risk and Exposure Assessment for Carbon Monoxide*. 75 FR 32178 (6/7/10).

EPA entered into a proposed settlement agreement under the CAA that requires the Agency to reexamine its policies for future model year 2011 and later heavy-duty diesel engines within a specific time frame. 75 FR 36654 (6/28/10).

HAZARDOUS & SOLID WASTE

EPA entered into a proposed administrative settlement under CERCLA that requires the settling party to pay U.S. response costs incurred at the Cooksey Brothers Landfill Fire Superfund site in Ashland, Kentucky. 75 FR 30831 (6/2/10).

EPA entered into a proposed settlement under CERCLA that requires the settling party to pay $147,935 in U.S. response costs incurred at the West Huntington Spill Superfund site in Huntington, West Virginia. 75 FR 33617 (6/14/10).

EPA entered into a proposed cost recovery settlement agreement under CERCLA that requires the settling party to pay $225,000, plus interest, in past U.S. response costs incurred at the H.M. Quackenbush, Inc. Superfund site in Herkimer, New York, and to pay $75,000 into an interest-bearing escrow account for site-related restoration purposes. 75 FR 34117 (6/16/10).

EPA entered into a proposed administrative settlement under CERCLA that requires the settling parties to pay $200,000 in past and future U.S. response costs incurred at the Great Lakes Container Corporation Superfund site in Coventry, Rhode Island, to perform a removal action to address hazardous substances at the site, and to pay all oversight and response costs related to the removal action. 75 FR 34448 (6/17/10).

EPA revised the 2011 brownfields guidelines for assessment, revolving loan fund, and cleanup grants. 75 FR 35456 (6/22/10).

WATER

EPA, in response to a 2009 Sixth Circuit ruling that vacated EPA's 2006 NPDES Pesticides Rule, proposed a draft NPDES general permit for all 10 Regions for point source discharges from the application of certain pesticides to waters of the United States. 75 FR 31775 (6/4/10).

EPA Region 4 determined that adequate and reasonably available pumpout facilities exist for the designation of the coastal waters of Brunswick and Pender Counties in North Carolina as a no discharge zone. 75 FR 35024 (6/21/10).

EPA announced availability for public review and comment of the draft website, 2010 Causal Analysis/Diagnosis Decision Information System, which would be used to identify the causes of biologically impaired water bodies. 75 FR 35457 (6/22/10).

WILDLIFE

NOAA-Fisheries announced a five-year review of the eastern distinct population segment of the Steller sea lion under the ESA. 75 FR 37385 (6/29/10).

DOJ NOTICES OF SETTLEMENT

United States v. Lifoam Industries, LLC, No. 10-CV-03825-AHM-FFM (C.D. Cal. May 24, 2010). A settling CAA defendant that violated management district rules and permit conditions at its foam manufacturing facility in Vernon, California, must pay a $450,000 civil penalty to the United States and the management district and must perform injunctive relief for emissions from its facility. 75 FR 30859 (6/2/10).

United States v. Sensient Colors Inc., No.07cv1275 (D.N.J. May 25, 2010). A settling CERCLA defendant must pay $7,100,000 in U.S. response costs incurred at its pigment and dye manufacturing facility, the General Color Superfund site in Camden, New Jersey. 75 FR 30859 (6/2/10).

United States v. Shoshone Silver Mining Co., No. 2:08-00495-EJL-CWD (D. Idaho May 7, 2010). Settling CERCLA defendants must pay $50,000 in U.S. response costs incurred at the Idaho Lakeview Mine Superfund site in Bonner County, Idaho, and must pay a share of any property sales within the next three years. 75 FR 31464 (6/3/10).

United States v. Scrap Yard, LLC, No. 1:10-cv-01206 (N.D. Ohio May 28, 2010). A settling CAA defendant that failed to recover or verify recovery of refrigerant from appliances accepted for disposal at its Cleveland, Ohio, facility must pay a $5,000 civil penalty, must purchase equipment to recover refrigerant or contract for such services at no additional cost, must no longer accept appliances without verification of no leakage, must require a verification statement from suppliers, and must keep a log of refrigerant recovered. 75 FR 32210 (6/7/10).

United States v. Romano, No. 1:08-cv-00314 (D.N.J. June 2, 2010). A settling CERCLA defendant must pay $12,000 in U.S. response costs incurred at the Pioneer Smelting Superfund site in Chatsworth, New Jersey. 75 FR 32503 (6/8/10).

United States v. American Municipal Power, Inc., No. 2:10-cv-438 (S.D. Ohio May 18, 2010). A settling CAA defendant that violated PSD, new source review, and Title V permit provisions at its coal-fired power plant in Marietta, Ohio, must pay a $850,000 civil penalty, must permanently shut down and retire all four units at the Gorsuch Station, and must spend $15 million on energy efficiency projects to mitigate the alleged adverse effects of its past violations. 75 FR 32504 (6/8/10).

United States v. Coffeyville Resources Refining & Marketing, LLC, No. 04-cv-01064 (D. Kan. June 9, 2010). Under a modified 2004 consent decree, settling CAA defendants will be given a 15-month extension to install air pollution controls at their oil refinery in Coffeyville, Kansas; the defendants must also take specified measures to reduce additional emissions caused by the delay. 75 FR 33825 (6/15/10).

United States v. Alaska, No. 3:10-cv-00115-JWS (D. Alaska June 2, 2010). A settling CWA defendant that violated regulations on the discharge of fill material and stormwater must pay a $140,000 civil penalty, must pay $850,000 in mitigation to acquire and protect valuable riparian areas, must revegetate three sites at which unpermitted fill was discharged, and must increase the training of its employees and efforts to comply with stormwater regulations. 75 FR 35087 (6/21/10).

United States v. Kasper Irrevocable Trusts, No. CV-08-4780 (E.D.N.Y. June 16, 2010). Settling CERCLA defendants must pay $350,000, plus accrued interest, in U.S. response costs incurred at the American Drive-In Cleaners Superfund site in Levittown, New York. 75 FR 35506 (6/22/10).

United States v. Silgan Containers LLC, No. 2:1-cv-00498 (E.D. Wis. June 14, 2010). A settling CAA defendant responsible for violations at 16 canning facilities nationwide must pay a $365,000 civil penalty, must undertake injunctive relief

at a cost of approximately $1.1 million, must obtain a Non-Title V minor source permit, must shut down two manufacturing lines, and must retire certain emission credits issued by the San Joaquin Valley air pollution control district. 75 FR 35506 (6/22/10).

United States v. Williamsport Sanitary Authority, No. 4:10-cv-01304 (M.D. Pa. June 22, 2010). A settling CWA defendant responsible for violations at its wastewater treatment plant must pay a $160,000 civil penalty to both the United States and Pennsylvania, must expand the treatment capacity of its plant, and must increase its storage capacity to guard against combined sewer overflows to the Susquehanna River. 75 FR 36679 (6/28/10).

United States v. Colaska, Inc., No. 3:10-cv-00116-RRB (D. Alaska June 2, 2010). A settling CWA defendant that violated stormwater discharge requirements at a construction site in Anchorage, Alaska, must pay a $50,000 civil penalty and must take measures to train employees, increase the frequency and quality of inspections, and ensure compliance with stormwater regulations. 75 FR 37837 (6/30/10).

United States v. Granite Construction Co., No. 3:10-cv-00117-RRB (D. Alaska June 2, 2010). A settling CWA defendant that violated stormwater discharge requirements at construction sites in Anchorage and Soldotna, Alaska, must pay a $250,000 civil penalty and must take measures to train employees, increase the frequency and quality of inspections, and ensure compliance with stormwater regulations. 75 FR 37838 (6/30/10).

In the State Agencies

The entries below cover state regulatory developments during the month of June 2010. The entries are arranged by state, and within each section, entries are further subdivided by subject matter area. For material previously reported, visit http://www.elr.info/State/stateupdate.cfm.

ALABAMA

WATER

The Department of Conservation and Natural Resources adopted Ala. Admin. Code r. 22-06.60, regarding the disposal of trash, garbage, or plastics from a vessel. *See* http://www.alabamaadministrativecode.state.al.us/UpdatedMonthly/AAM-MAY-10/CERTIFIED.pdf.

WILDLIFE

The Department of Conservation and Natural Resources amended sections of Ala. Admin. Code 220-3, regarding fish harvesting. *See* http://www.alabamaadministrativecode.state.al.us/UpdatedMonthly/AAM-MAY-10/CERTIFIED.pdf.

ALASKA

AIR

The Department of Environmental Conservation raised air quality permit administration and emissions fees. New fees go into effect July 1, 2010. *See* http://notes4.state.ak.us/pn/pubnotic.nsf/1604e191287514068925678500676 7f6/8ebd8ff3a3bb83548925773e005cf9bf?OpenDocument.

ARIZONA

AIR

The Department of Environmental Quality adopted a one-time emissions-based fee for all regulated air pollutants emitted in 2008. All bodies that were ordered to pay emissions-based fees will now be required to pay an additional $20.82 per ton of emissions. *See* http://www.azsos.gov/public_services/Register/2010/21/exempt.pdf (pp. 844-45).

HAZARDOUS & SOLID WASTE

The Department of Environmental Quality raised fees for hazardous and solid waste permits for 2011, including a sevenfold increase in hazardous waste generation per ton for large quantity generators, the adoption of fees for small quantity generators, and an increase in landfill registration fees. The fees become effective July 1, 2010. *See* http://www.azsos.gov/public_services/Register/2010/21/exempt.pdf (pp. 846-50).

LAND USE

The State Land Department has established the FY 2010 fees for applications and other transactions involving the lease, sales, or use of Arizona's State Trust lands. *See* http://www.azsos.gov/public_services/Register/2010/24/policy.pdf.

WATER

The Department of Environmental Quality has increased water quality protection fees for FY2011. Among other increases, the Department has raised per hour and maximum individual permit fees and the Gallons of Permitted Discharge or Influent per day fees. The increases take effect July 1, 2010. *See* http://www.azsos.gov/public_services/Register/2010/21/exempt.pdf (pp. 850-54).

ARKANSAS

AIR

The Pollution Control and Ecology Commission seeks public comment

on proposed changes to Commission Regulation 2 (Arkansas Water Quality Standards). Changes include significant revisions to physical habitat alteration laws and bacterial standards. The deadline for comments is August 4. *See* http://www.adeq.state.ar.us/ftproot/Pub/pa/News_Releases/2010-06-09_Four_Hearings_Set_on_Proposed_Regulation_2_Changes__Water.mht.

CALIFORNIA

AIR

The Air Resources Board has filed a regulation with the Secretary of State that requires measurement of the effectiveness of on-board diagnostic (OBD) systems in heavy-duty engines. It also specifies the required capabilities of OBD systems installed in passenger cars, light-duty trucks, and medium-duty vehicles, and updates the regulation that specifies the emission standards pertinent to OBD systems. The affected code is Cal. Code Regs. tit. 13, §§1971.5, 1968.2, and 1971.1. It was filed on May 18 and became effective June 17, 2010. *See* http://www.oal.ca.gov/res/docs/pdf/notice/22z-2010.pdf (pp. 794-95).

The Office of Environmental Health Hazard and Assessment seeks public comment on a draft of revised reference exposure levels for nickel and nickel compounds for the Air Toxics Hot Spots Program. The Office also seeks comment on revised methodology to protect infants, children, and other sensitive subpopulations. The public review period will end on August 3, 2010. *See* http://www.oal.ca.gov/res/docs/pdf/notice/23z-2010.pdf (pp. 860-61).

WATER

The Office of Environmental Health Hazard Assessment has published its annual list of chemicals known to the state to cause cancer or reproductive toxicity. The office has added dimethylacetamide to the reproductive toxicity list. For the list, see http://www.oal.ca.gov/res/docs/pdf/notice/21z-2010.pdf (pp. 737-55).

WILDLIFE

The Department of Food and Agriculture amended Cal. Code Regs. tit. 3, §3591.5(a) to add Imperial County to the list of areas designated for the eradication of the Mediterranean fruit fly. The amendment was filed on May 17, 2010, and became effective on that date. *See* http://www.oal.ca.gov/res/docs/pdf/notice/22z-2010.pdf (p. 796).

The Department of Food and Agriculture amended Cal. Code Regs. tit. 3, §3437, to expand the quarantine area for the European grapevine moth by over 1,000 square miles to prevent the artificial spread of the moth to uninfested areas of California. The amendment was filed on May 13, 2010, and became effective on that date. *See* http://www.oal.ca.gov/res/docs/pdf/notice/22z-2010.pdf (pp. 796-97).

The Department of Food and Agriculture amended Cal. Code Regs. tit. 3, §3423(b), pertaining to the Oriental fruit fly interior quarantine. The amendments remove 84 square miles of land from the area under quarantine, and removes authority from the state of California to regulate movement of the fly in the recently dequarantined zone. The Department intends to submit a Certificate of Compliance for this action no later than August 31, 2010.*See* http://www.oal.ca.gov/res/docs/pdf/notice/23z-2010.pdf (pp. 811-13).

The Fish and Game Commission has determined that the addition of the California tiger salamander (Ambystoma californiense) to the list of threatened species list is warranted. The finding is pursuant to Cal. Fish & Game Code §2050. *See* http://www.oal.ca.gov/res/docs/pdf/notice/23z-2010.pdf (pp. 855-60).

COLORADO

HAZARDOUS & SOLID WASTE

The Department of Public Health and Environment amended 6 Colo. Code Regs. ch. 1007, §3, which pertains to standards for transporters of hazardous waste and hazardous waste commission fees. The new rules took effect June 30, 2010. *See* http://www.sos.state.co.us/CCR/Upload%5C%5CAGORequest%5C%5CAdoptedRules02010-00223.RTF.

WATER

The Department of Natural Resources amended 2 Colo. Code Regs. ch. 410, §1, which pertains to groundwater regulations. The new rules took effect June 30, 2010. *See* http://www.sos.state.co.us/CCR/Upload%5C%5CAGORequest%5C%5CAdoptedRules02009-00799.DOC.

DELAWARE

WILDLIFE

The Department of Natural Resources and Environmental Control, Division of Fish and Wildlife, seeks public comment on proposed changes to 7 Del. Code Regs. §3507, Tidal Finfish Regulations. Proposed regulations would force the state to implement seasonal closures on Black Sea Bass to prevent the harvest cap from being exceeded. *See* http://regulations.delaware.gov/register/may2010/proposed/13%20DE%20Reg%201431%2005-01-10.htm#P11_240.

FLORIDA

WILDLIFE

The Fish and Wildlife Commission has made changes to permit regulations for possession of wildlife in captivity, in addition to caging requirements. *See* https://www.flrules.org/gateway/readFile.asp?sid=3&tid=8704603&type=1&File=68A-6.0022.htm and https://www.flrules.org/gateway/readFile.asp?sid=3&tid=8704894&type=1&File=68A-6.003.htm, respectively.

The Fish and Wildlife Commission has instituted a continuation of laws regarding the escape of non-native venomous reptiles. *See* https://www.flrules.org/gate-

way/readFile.asp?sid=3&tid=8705088&type=1&File=68A-6.0072.htm.

IDAHO

WATER

The Board of Environmental Quality adopted a revision to Idaho Admin. Code r. 58.01.20, Rules for Administration of Drinking Water Loan Program. The change allows the Department of Environmental Quality to collect a fee in the form of a percentage of each loan, and is designed to substitute State General Fund monies to support infrastructure programs. The revision is pending review by the Idaho state legislature. *See* http://adm.idaho.gov/adminrules/bulletin/bul/10bul/10jun.pdf (p. 65).

ILLINOIS

WILDLIFE

The Department of Natural Resources adopted amendments to Ill. Admin. Code tit. 17, ch. I, pt. 750, regarding who may lawfully possess a deer killed by a motor vehicle. Among many changes to the criteria for ownership of a dead deer, no one who is delinquent in child support may now possess or transport a carcass. The driver of the vehicle that struck the deer still has priority in claiming the animal, and there is still no limit to the number of dead deer that may be possessed, but those who wish to claim deer must report relevant information, such as the location of the kill and the new owner's identifying information, to the Department. The rules took effect May 20, 2010. *See* http://www.cyberdriveillinois.com/departments/index/register/register_volume34_issue23.pdf (pp. 7715-19).

INDIANA

AIR

The Air Pollution Control Board has temporarily amended 326 Ind. Admin. Code §§1-4 to include the federal redesignations for Lake and Porter counties and Lawrenceburg Township, Dearborn County, to attainment for the eight-hour ozone standard. The emergency rule took effect June 4, 2010. For the updated designations, see http://www.in.gov/legislative/iac/20100616-IR-326100354ERA.xml.html.

HAZARDOUS & SOLID WASTE

The Solid Waste Management Board amended 329 Ind. Admin. Code §9, which concerns delivery prohibition of regulated substance at USTs as mandated by the Underground Storage Tank Compliance Act. *See* http://www.in.gov/legislative/iac/20100602-IR-329070468FRA.xml.pdf.

WATER

The Water Pollution Control Board amended 327 Ind. Admin. Code §8-2, which pertains to drinking water standards. *See* http://www.in.gov/legislative/iac/20100602-IR-327080198FRA.xml.pdf.

IOWA

WATER

The Department of Natural Resources intends to change Chapter 9, Groundwater Hazard Documentation, of the *Iowa Administrative Code*. The amendments would incorporate changes to the private sewage disposal requirements contained in Iowa Admin. Code r. 455B.172(11) and the groundwater hazard statement requirements contained in Iowa Admin. Code r. 558.69. *See* http://www.legis.state.ia.us/aspx/ACODOCS/DOCS/06-02-2010.Bulletin.pdf (pp. 2699-700).

KANSAS

AIR

The Department of Health and Environment adopted permanent changes to Kan. Admin. Regs. tit. 28, §19, which pertains to ambient air quality standards. Changes set certain limits on idle times and nitrogen oxide emissions for heavy-duty diesel vehicles. The changes became effective June 25, and owners of vehicles must demonstrate compliance within 24 months. *See* http://www.kssos.org/pubs/register%5C2010%5CVol_29_No_23_June_10_2010_p_857-976.pdf (pp. 866-68).

The Department of Health and Environment proposed amendments to Kan. Admin. Regs. §28-19, which governs air quality. Changes will raise emissions fees and alter the emissions inventory reporting process, among other alterations. There will be a public hearing on August 30, 2010, which is also the close of the comment period. *See* http://www.kssos.org/pubs/register%5C2010%5CVol_29_No_24_June_17_2010_p_977-996.pdf (pp. 987-88).

LOUISIANA

AIR

The Department of Agriculture and Forestry has declared an emergency rule changing La. Admin. Code 7:XXIII.143 and altering the restrictions on the use of the pesticides 2, 4-D, and ULV Malathion/Pyrethroid to combat insects infesting rice and cotton crops. *See* http://www.doa.la.gov/osr/reg/1005/1005.pdf (pp. 914-16).

WILDLIFE

The Department of Wildlife and Fisheries has declared an emergency rule closing all commercial and recreational fishing in large portions of Louisiana waters affected by the Deepwater Horizon spill in order to protect existing aquatic life and ensure that no fish harvested for consumption is tainted with hydrocarbons. In addition, the department has closed certain waters to shrimping while instituting a special shrimp season in others. *See* http://www.doa.la.gov/osr/reg/1005/1005.pdf (963-66).

MAINE

HAZARDOUS & SOLID WASTE

The Maine Department of Public Safety has adopted regulations regarding the transportation of hazardous waste through the state of Maine. *See* http://www.maine.gov/sos/cec/rules/notices/2010/052610.html.

WILDLIFE

The Department of Inland Fisheries and Wildlife has adopted restrictions on antlerless deer hunting and has established permit allocations for 29 Wildlife Management Districts. *See* http://www.maine.gov/sos/cec/rules/notices/2010/060210.html.

MASSACHUSETTS

GENERAL

The Executive Office of Environmental Affairs will be holding hearings throughout the month of June in various locations in Massachusetts in compliance with the Massachusetts Global Warming Solutions Act on the state's plan for greenhouse gas reduction and its goal of 80 percent reduction by 2050. *See* http://www.mass.gov/dep/public/hearings/gwsa0610.htm.

MISSOURI

AIR

The Department of Natural Resources proposed changes to the list of chemicals in Mo. Code Regs. Ann. tit. 10, §10-6.020, Definitions and Common Reference Tables. The changes would add propylene carbonate and dimethyl carbonate to the list of compounds that are not considered volatile organic compound (VOC) emissions while adding a number of compounds to the list that are considered to be VOCs. The deadline for comments is August 4, 2010. *See* http://www.sos.mo.gov/adrules/moreg/current/2010/v35n11/v35n11a.pdf (pp. 858-62).

The Department of Natural Resources amended Mo. Code Regs. Ann. tit. 10, §10-6.050, which now requires operations to notify the Missouri Department of Natural Resources' Air Pollution Control Program of any startup, shutdown, or maintenance that is expected to cause an excess release of emissions. *See* http://www.sos.mo.gov/adrules/moreg/current/2010/v35n11/v35n11a.pdf (p. 896).

WILDLIFE

The Department of Conservation amended Mo. Code Regs. Ann. tit. 3, §10-7.432 to establish an archery deer hunting season. It also amended §10-7.433 to establish firearm deer hunting seasons, limits, and provisions for hunting, and §§10-7.435 and 10-7.437 to add deer harvesting limits and regulations for antlerless hunting. All changes take effect July 1, 2010. *See* http://www.sos.mo.gov/adrules/moreg/current/2010/v35n11/v35n11a.pdf (pp. 882-83).

MONTANA

AIR

The Board of Environmental Review amended Mont. Admin. R. 17.8.745 pertaining to Montana air quality permits and an exclusion for de minimis changes. *See* http://sos.mt.gov/arm/Register/archives/MAR2010/MAR10-10.pdf (p. 1292).

NEVADA

GENERAL

The Nevada Energy Commission proposed amendments to Nev. Admin. Code §701A, pertaining to provisions for energy-related tax incentives. Changes prescribe the process by which organizations or individuals may apply for a tax abatement and provide for a government hearing for applications. For the draft of amendments, see http://www.leg.state.nv.us/register/2010Register/R094-10P.pdf.

WILDLIFE

The Board of Wildlife Commissioners proposed changes to Nev. Admin. Code §R080-10 that would govern the use of blinds in duck hunting. *See* http://www.leg.state.nv.us/register/2010Register/R080-10P.pdf.

The Board of Wildlife Commissioners proposed changes to Nev. Admin. Code §R081-10 that would place certain prohibitions on using a camera to track big game mammals for the purposes of hunting. *See* http://www.leg.state.nv.us/register/2010Register/R081-10P.pdf.

The Board of Wildlife Commissioners proposed changes to Nev. Admin. Code §R083-10 that would prohibit a person from interfering with a water guzzler or other water development. *See* http://www.leg.state.nv.us/register/2010Register/R083-10P.pdf.

NEW JERSEY

WATER

The Pinelands Commission has proposed amendment to N.J. Admin. Code §§7:50-2.11, 6.84, 10.21, 10.22, and 10.23, which relate to the Pilot Program for Alternate Design Wastewater Treatment Systems. Among other changes stemming from an eight-year efficacy study of the program, the Commission intends to reduce nitrogen in wastewater, require manufacturers of new systems to submit to EPA verification and certification, and extend the period of the pilot program. The public comment period ends August 6. *See* http://www.lexisnexis.com/njoal/ (42 N.J.R. 987(a)).

NEW MEXICO

WATER

The Water Quality Control Commission seeks public comment on pro-

posed amendments to N.M. Code R. §20.6.4.9 submitted by the New Mexico Environment Department, the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, which nominate all perennial waters within United States Forest Service Wilderness Areas as outstanding national resource waters. The hearing will be September 14, 2010. *See* http://www.nmcpr.state.nm.us/nmregister/xxi/xxi10/WaterQualnotice2.pdf.

The Water Trust Board amended N.M. Code R. §19.25.10, which governs review and eligibility of proposed water projects. The amendments require plans to be submitted to the Environment Department and changes the appeals process. The changes took effect May 28, 2010. *See* http://www.nmcpr.state.nm.us/nmregister/xxi/xxi10/19.25.10amend.pdf.

NEW YORK

AIR

The Department of Environmental Conservation proposed changes to N.Y. Comp. Codes R. & Regs. tit. 6 parts 200 and 228, which pertain to volatile organic compounds (VOCs). Amendments are designed to reduce the eight-hour ozone levels for New York's designated nonattainment areas by limiting the use of VOCs from commercial and industrial adhesives, sealants, and primers. *See* http://www.dos.state.ny.us/info/register/2010/jun16/pdfs/rules.pdf (pp. 10-15).

ENERGY

The Public Service is seeking public comment on a proposed extension and expansion of its residential and small business air conditioning direct-load control program. *See* http://www.dos.state.ny.us/info/register/2010/jun9/pdfs/rules.pdf (p. 9).

LAND USE

The Department of Environmental Conservation amended N.Y. Comp. Codes R. & Regs. tit. 6, §§190.10 and 190.25. The new rules pertain to natural resources in the Zoar Valley Multiple Use Area. *See* http://www.dos.state.ny.us/info/register/2010/jun9/pdfs/rules.pdf (p. 8).

WATER

The New York State Canal Corporation proposed to amend N.Y. Comp. Codes R. & Regs. tit. 21 to require the Canal Corporation to make all of its records publicly available. *See* http://www.dos.state.ny.us/info/register/2010/may26/pdfs/rules.pdf (pp. 5-6).

WILDLIFE

The Department of Environmental Conservation proposed to amend N.Y. Comp. Codes R. & Regs. tit. 6, §§1.30 and 6.3, which pertain to deer management assistance permits and the use of "pelt seals" for beaver. Hunters with assistance permits would be required to attach identification tags to deer carcasses, and only the taker of beaver would be allowed to possess the pelt or carcass. *See* http://www.dos.state.ny.us/info/register/2010/jun16/pdfs/rules.pdf (pp. 3-5).

NORTH CAROLINA

WATER

The Department of Environment and Natural Resources proposed changes to 15A N.C. Admin. Code 02H.0901, which governs local pretreatment programs. Among other changes, the amendments would give greater flexibility to Department of Water Quality oversight. The comment period ends August 2. The proposed effective date is January 1, 2011. *See* http://www.ncoah.com/rules/register/Volume24Issue-23June12010.pdf (pp. 2015-33).

The Department of Agriculture and Consumer Services proposed changes to 2 N.C. Admin. Code §34.0102 regarding the classification of termite pesticides. The comment period ends August 16, 2010. *See* http://www.ncoah.com/rules/register/Volume24Issue-24June152010.pdf (pp. 2156-59).

The Environmental Management Commission proposed changes to 15A N.C. Admin. Code §02T.1310-.1311, which would remove fecal coliform and biochemical oxygen demand (BOD5) from the list of parameters to be sampled as part of the animal operations monitoring standards of the Aquifer Protection section of water quality code. The comment period ends August 16, 2010, and the amendment has a proposed effective date of January 1, 2011. *See* http://www.ncoah.com/rules/register/Volume24Issue24June152010.pdf (pp. 2238-41).

OKLAHOMA

AIR

The Department of Environmental Quality has revoked Okla. Admin. Code §§252:100-15-1 through 252:100-15-6, which govern motor vehicle pollution control devices. *See* http://www.oar.state.ok.us/register/Volume-27_Issue-17.htm#a427815.

WATER

The governor of Oklahoma approved amendments to Title 785, Oklahoma Water Resources Board, Chapter 45. Oklahoma's Water Quality Standards. Changes related to surface water quality and beneficial use designation, among other things. *See* http://www.oar.state.ok.us/register/Volume-27_I ssue-18.htm#a42507.

The Grand River Dam Authority adopted changes to Okla. Admin. Code tit. 300, §§20-1-1 through 20-1-16, which governs the Grand River Dam Authority's Purchasing Unit. It now grants the general manager authority to approve change orders to contracts provided the total amount of the cumulative change orders does not exceed $50,000 and is reported to the Board of Directors at the next regularly scheduled meeting. The amendments took effect June 25, 2010.

See http://www.oar.state.ok.us/register/Volume-27_Issue-19.htm#a258060.

OREGON

WILDLIFE

The Fish and Wildlife Commission proposed to amend rules regarding seasons and bag limits for the 2010–2011 and 2011–2012 furbearer harvest and pursuit seasons set forth in Or. Admin. R. 635-043. *See* http://arcweb.sos.state.or.us/rules/0510_Bulletin/0510_rulemaking_bulletin.html.

The Fish and Wildlife Commission proposed amendments to Or. Admin. R. 635 concerning control tag hunt numbers and season regulations for pronghorn antelope, bighorn sheep, Rocky Mountain goat, deer, and elk; rules that ban the importation of certain cervid parts from states that have confirmed the presence of Chronic Waste Disease; and 2011 hunting regulations. *See* http://arcweb.sos.state.or.us/rules/0510_Bulletin/0510_rulemaking_bulletin.html.

PENNSYLVANIA

LAND USE

The Game Commission amended 34 Pa. Const. Stat. §135.1 to authorize the Executive Director to bid on real estate, oil, gas, or mineral rights at auction or tax sales. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1073.html.

WATER

The Department of Environmental Protection has posted proposed TMDLs for seven different areas. *See* http://www.pabulletin.com/secure/data/vol40/40-23/index.html.

WILDLIFE

The Game Commission amended 34 Pa. Const. Stat. §143.45 to authorize county treasurers to begin selling antlerless licenses over-the-counter on the first Monday in October. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1079.html.

The Game Commission amended 34 Pa. Const. Stat. §141.4 to extend open hunting hours in the spring gobbler season. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1075.html.

The Game Commission amended 34 Pa. Const. Stat. §141.62 to remove beaver trapping limitations. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1076.html.

The Game Commission amended 34 Pa. Const. Stat. §141.62, relating to cable restraints. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1077.html.

The Game Commission amended 34 Pa. Const. Stat. §§141.48 and 143.206, relating to elk harvesting. *See* http://www.pabulletin.com/secure/data/vol40/40-24/1078.html.

RHODE ISLAND

GENERAL

The Department of Environmental Management seeks public comment on a draft of its Environmental Equity Policy, which is meant to ensure that no person or particular group of persons suffers disproportionately from environmental degradation or intentional discrimination, or is denied enjoyment of a fair share of environmental improvements. *See* http://www.dem.ri.gov/pubs/eequity.htm.

HAZARDOUS & SOLID WASTE

The Department of Environmental Management amended Regulation #DEM OWM-HW10-01, Hazardous Waste Regulations. Among other changes, the Department has added stricter documentation requirements for the transportation of hazardous waste and has designated different classes for landfills. For the amended regulations, see http://www.dem.ri.gov/pubs/regs/regs/waste/hwregs10.pdf.

SOUTH CAROLINA

AIR

The Department of Health and Environmental Control submitted documents demonstrating attainment status of York County, South Carolina, which was previously classified as a moderate nonattainment area for the eight-hour ozone NAAQS, to U.S. EPA. *See* http://www.scdhec.gov/administration/regs/sip-rfats.htm.

SOUTH DAKOTA

AIR

The Department of Environment and Natural Resources has raised permit fees for the Title V air quality permit program. New fees went into effect June 28. *See* http://legis.state.sd.us/rules/register/06142010.pdf (p. 208).

TENNESSEE

HAZARDOUS & SOLID WASTE

The Department of Environment and Conservation seeks public comment on proposed changes to Tenn. Comp. R. & Regs. 1200-02-10, which governs the handling of radioactive waste. The hearing will be on August 8, 2010, and the deadline for written comments is August 9. *See* http://state.tn.us/sos/rules_filings/06-04-10.pdf.

TEXAS

ENERGY

The Comptroller of Public Accounts adopted the new 34 Tex. Admin. Code §19.53, concerning building energy efficiency performance standards. The changes are designed to make the *Texas Code* as stringent as the International

Energy Conservation Code. The new law will take effect April 1, 2011. *See* http://www.sos.state.tx.us/texreg/pdf/backview/0604/index.shtml (pp. 4727-29).

WATER

The Commission on Environmental Quality adopted an amendment to 30 Tex. Admin. Code §290.46, which governs regulations for public water systems. The new rules require the regulatory authority for a public utility to adopt standards for installing fire hydrants adequate to protect public safety in residential areas in a municipality with a population of 1,000,000 or more. The regulation took effect June 10, 2010. *See* http://www.sos.state.tx.us/texreg/pdf/backview/0604/index.shtml (pp. 4726-27).

WILDLIFE

The Parks and Wildlife Commission has proposed changes to 31 Tex. Admin. Code §§65.315, 65.318 to 65.321, which governs the hunting of migratory birds. Among other changes, the amendments would implement a 16-day teal season and adjust duck season dates to help protect the mottled duck. *See* http://www.sos.state.tx.us/texreg/pdf/backview/0521/0521is.pdf (pp. 3957-60).

The Parks and Wildlife Commission adopted changes to 31 Tex. Admin. Code §§65.261 - 65.267 and 65.269 - 65.277, and has implemented the new §§65.261 - 65.277. The changes alter bird possession permit and falconry laws. *See* http://www.sos.state.tx.us/texreg/sos/adopted/31.NATURAL%20RESOURCES%20AND%20CONSERVATION.html#201.

VIRGINIA

WILDLIFE

The Marine Resources Commission adopted several amendments to 4 Va. Admin. Code 20, pertaining to the harvesting of sharks, shellfish, and oysters. *See* http://legis.state.va.us/codecomm/register/vol26/iss19/v26i19.pdf (pp. 2438-44).

WASHINGTON

CLIMATE

The Department of Ecology posted a notice of possibly making a rule that would adopt mandatory greenhouse gas (GHG) reporting for certain facilities or fuel suppliers emitting at least 10,000 metric tons of GHGs annually in the state. *See* http://apps.leg.wa.gov/documents/laws/wsr/2010/11/10-11-098.htm.

HAZARDOUS & SOLID WASTE

The Department of Ecology proposes to amend Wash. Admin. Code 173-350, which pertains to the handling of recyclable hazardous materials by waste facilities. Proposed changes include new exemptions for organic materials and definitions for take-back centers. The Department is also considering the repeal of 173-345, which sets the minimum standards for transporters of hazardous waste. According to the Department, changes are necessary to promote organic recycling and provide exemptions for compost. *See* http://apps.leg.wa.gov/documents/laws/wsr/2010/12/10-12-051.htm.

WILDLIFE

The Department of Fish and Wildlife adopted emergency amendments to Wash. Admin. Code 232-28-619. The rules pertain to personal use fishing and are amended to conserve the populations of certain fish. The rules took effect June 5, 2010. *See* http://apps.leg.wa.gov/documents/laws/wsr/2010/12/10-12-001.htm. For the full list of sections of the code affected, see http://apps.leg.wa.gov/documents/laws/wsr/2010/12/10-12.htm (under "Fish and Wildlife, Department of").

WEST VIRGINIA

AIR

The Air Quality Board adopted a number of amendments to W. Va. Code R. tit. 45, including ambient air quality standards, standards of performance for new stationary sources, and emission standards for hazardous air pollutants. All rules took effect June 1, 2010. *See* http://www.sos.wv.gov/administrative-law/register/Documents/2010/052810.pdf (pp. 863-64).

WATER

The Water Resources Board adopted a number of changes to W. Va. Code R. tit. 47, including rules that govern groundwater pollutants. All rules took effect July 1, 2010. *See* http://www.sos.wv.gov/administrative-law/register/Documents/2010/052810.pdf (p. 875).

WISCONSIN

GENERAL

The Department of Natural Resources proposed to create a rule to establish procedures by which mercury-containing products may be exempt from the sales ban contained in 2009 Wisconsin Act 44: Products Containing Mercury. *See* http://www.legis.state.wi.us/rsb/code/register/reg653b.pdf (pp. 18-19).

HAZARDOUS & SOLID WASTE

The Department of Natural Resources has instituted an emergency rule revising Wis. Admin. Code NR §660.10, defining "large quantity generator" and "small quantity generator." *See* http://www.legis.state.wi.us/rsb/code/register/reg653b.pdf (p. 12).

WATER

The Department of Natural Resources has instituted an emergency rule revising Wis. Admin. Code NR §§335 and 336, relating to grants for dam maintenance, repair, modification, or abandonment and removal. *See* http://www.legis.state.wi.us/rsb/code/register/reg653b.pdf (p. 12).

RECENT JOURNAL LITERATURE

"Recent Journal Literature" lists recently published law review and other legal periodical articles. Within subject-matter categories, entries are listed alphabetically by author or title. Articles are listed first, followed by comments, notes, symposia, surveys, and bibliographies.

For a complete list of all law review articles listed in the Journal Literature section of ELR*, visit our Cumulative Law Review Bibliography at http://www.elr.info/Indexes/clrb.cfm.*

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Kohm, Katharine, *Shortcomings of the Cartagena Protocol: Resolving the Liability Loophole at an International Level,* 27 UCLA J. Envtl. L. & Pol'y 145 (2009).

Tesini, Dan, *Working Forest Conservation Easements,* 41 Urb. Law. 359 (2009).

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Martella, Roger R. & James W. Coleman, *Ratifying Kyoto Via Local Actors: Accomplishments and Limitations of Local Cap-and-Trade Programs,* 40 ELR 10780 (Aug. 2010).

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Irvin, Wm. Robert, *Comment on* Rethinking the ESA to Reflect Human Dominion Over Nature*,* 40 ELR 10809 (Aug. 2010).

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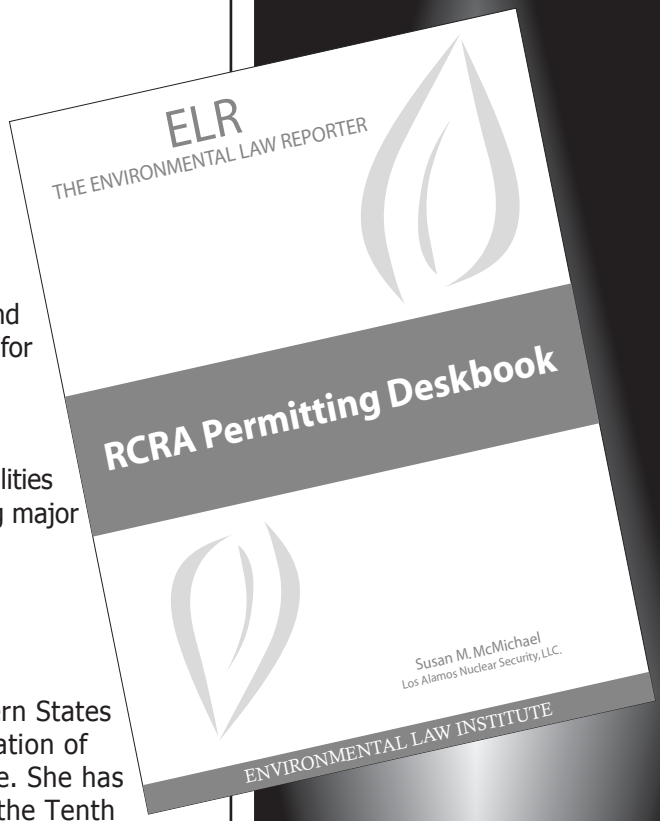
Miller, Gary, *Exporting Morality With Trade Restrictions: The Wrong Path to Animal Rights,* 34 Brook. J. Int'l L. 999 (2009).

TOPICAL INDEX

FORTHCOMING

RCRA Permitting Deskbook

by Susan M. McMichael



The Resource Conservation and Recovery Act (RCRA) is a complex area. The misinterpretation of its requirements goes to the heart of environmental compliance problems found by many. Problems may arise that cause major delays in processing permits and modifications, resulting in unnecessary costs not only for those seeking a permit, but also for the permitting authorities. The handbook provides a comprehensive, peer-reviewed overview of the substantive permitting requirements for treatment, storage, and disposal facilities and incorporates relevant legal research by identifying major administrative, federal, and state court decisions.

About the Author

Susan M. McMichael is a former chair of the Western States Project, and representative on the National Association of Attorney Generals RCRA Federal Facility Task Force. She has clerked for the United States Court of Appeals for the Tenth Circuit and currently works for Los Alamos Nuclear Security, LLC.

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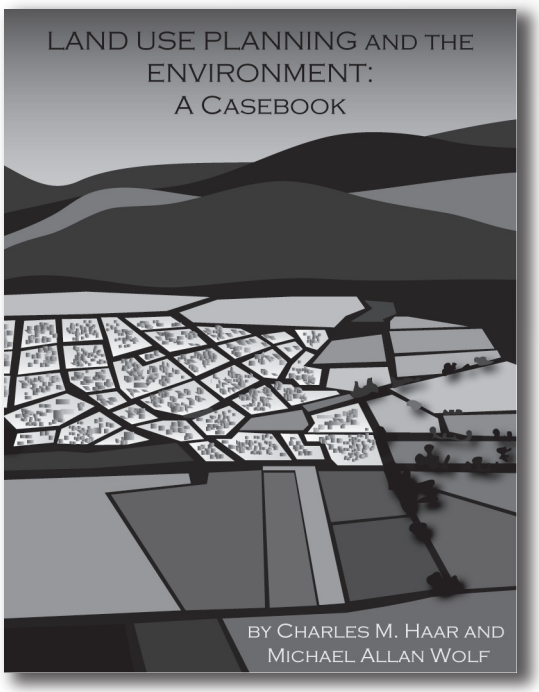
NEW RELEASE

Land Use Planning and the Environment: A Casebook

By Charles M. Haar and Michael Allan Wolf

With the publication of ***Land Use Planning and the Environment***, Profs. Haar (Harvard Law) and Wolf (Florida Law) have dramatically revised and updated a seminal casebook, ***Land-Use Planning***, allowing them to continue charting a course that distinguishes the volume in meaningful ways from competing texts.

Designed primarily for the classroom, the book takes a pervasive approach to the teaching and learning of planning and zoning law, regulatory takings, and environmental topics. With local and state governments sharing environmental regulatory responsibilities with their federal counterparts to a much greater extent in the 2000s than ever before, ***Land Use Planning and the Environment*** offers a unique strategy for addressing these overlapping and, at times, conflicting administrative regimes.



Throughout the book, the authors explicitly identify and explore intersections between land-use planning law and environmental regulation. Professors, students, and law and planning practitioners with strong backgrounds and exposure to "traditional" environmental law will find these intersections a timely opportunity to examine familiar topics from a different perspective.

About the Authors:

Charles M. Haar, Brandeis Professor of Law, Harvard University, and visiting member, Institute for Advanced Study, Princeton, has been a leading scholar in land use planning, urban redevelopment, and environmental law for more than six decades. **Michael Allan Wolf** is the Richard E. Nelson Chair in Local Government Law at the University of Florida Levin College of Law. He is the general editor of Powell on Real Property, the leading treatise on the subject.

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